# digital

PDP-11, VAX-11
PRODUCT SUMMARY
APRIL–SEPTEMBER 1980

MICRO AND MINICOMPUTER PRODUCTS
THAT MAXIMIZE PERFORMANCE
WHILE MINIMIZING SYSTEM COST
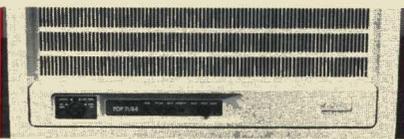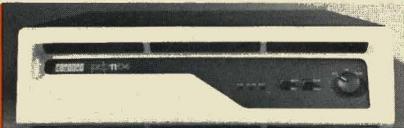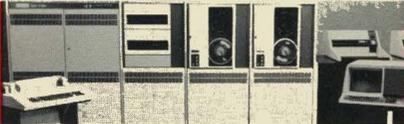
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Highlights

• The SB11, a new fully configured LSI-11/2 product for local or remote communication applications and also Lab/Instrumentation applications with an optional choice of terminals

• The PDT-11/153 is a new version of the intelligent PDT products

• The PDP-11/44, DIGITAL's newest member of the UNIBUS PDP-11 family features a large cache memory, memory management for up to 1 Megabyte of memory, microprocessor controlled ASCII console, and the new TU58 DECtape II mini-cartridge subsystem.

• DECnet Phase III will be supported running under RSX-11M, RSX-11M-PLUS and RSX-11S operating systems providing new capabilities in computer networking architecture

• PDP-11/04 Packaged Systems are not promoted in this product summary, however box level PDP-11/04s are still available.

• On March 4, 1980 DIGITAL announced a price increase in all hardware and software products

This Summary gives you concise descriptions of the latest OEM Microcomputers, Minicomputers, Systems and Options as well as configuring information about each product.

The catalog is divided into three major sections.

- The first section features microcomputers, minicomputers and corresponding packaged systems for each product offering along with product specific options.

- The second section features a wide range of fully compatible add-on options for all product offerings such as mass storage devices, lineprinters, and communications hardware.

- The third section features all operating systems plus additional software packages running under each operating system available for added performance.

All packaged systems described in this summary are configured with an LA36 DECwriter II, VT100 console terminal or LA38, LA120 Hardcopy terminal. For system configurations other than those described here, please contact your local DIGITAL Sales Office.

An alphabetical index is included at the back of the catalog for easy reference of all systems, options and software contained within this summary.

System Code

The first entry is the order number for the system, with 120 Vac, 60 cycle power. The second entry, shown immediately below in *italics* is used for 240 Vac, 50 cycle power systems.

The basic features and specifications of each system are included in the description. More complete hardware and software descriptions can be found in option bulletins, handbooks, and Software Product Descriptions.

Box

The diagrams shown below indicate the number of system units in the CPU backplane or in BA11-type expander boxes.

SU 1	
SU 2	
SU 3	
SU 4	
SU 5	
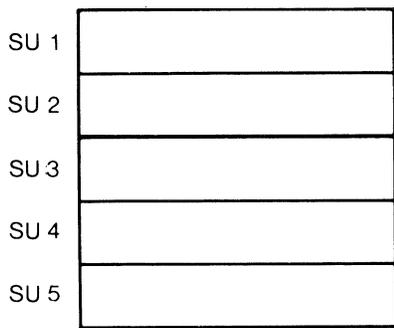
PDP-11/04, PDP-11/34A CPU Backplane
or
BA11-K Expander Box

SU 1	
SU 2	
SU 3	
SU 4	
SU 5	
SU 6	
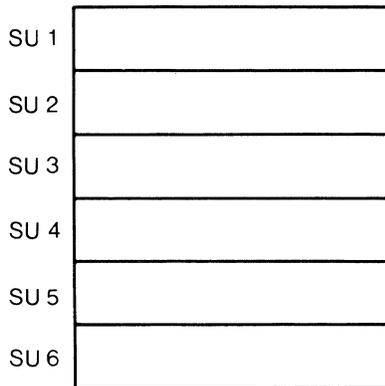
PDP-11/44, PDP-11/60 CPU Backplane
or
BA11-P Expander Box

SU 1	
SU 2	

BA11-L Expander Box

Dedicated Backplane

Dedicated Backplane

	Quad Slot
	Hex Slot
	Hex Slot
	Hex Slot
	Quad Slot
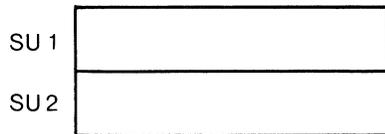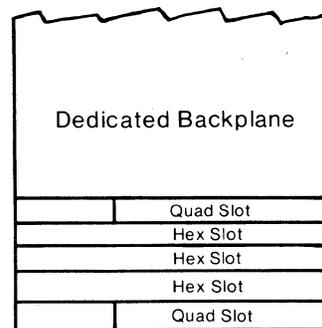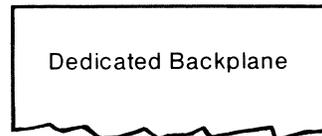
PDP-11/70 CPU Backplane

Expansion Space
Amount of expansion space available in the system.

LSI-11 Double slot	Space in pre-wired 11/03 backplane which will accept a 5.2185 inch (13.255cm) high module for PDP-11/03 systems.
LSI-11 Quad slot	Space in pre-wired backplane which will accept a 10.437 inch (26.510cm) high module for PDP-11/03 systems.
Quad slot	Space in pre-wired backplane which will accept a 10.437 inch (26.510cm) high module for UNIBUS systems.
Hex slot	Space in pre-wired backplane which will accept a 15.604 inch (39.634cm) high module for UNIBUS systems.
SU	System Unit. Unit of space in chassis for mounting pre-wired backplane(s) which can accept Hex- or Quad-sized modules.
MASSBUS Port	Unit of expansion space in PDP-11/70 processor box reserved for connection of high-speed peripheral options.
MBA	MASSBUS adapter
UBA	UNIBUS adapter

Power Available Amps
Current available for system expansion @+5V or @+5V, @+15V, @-15V.

System Bus Loads Available
The number of loads remaining on the UNIBUS. There can be a total of 20 bus loads or 50 feet (15.2 meters) of UNIBUS cable before a Bus Repeater, DB11, is needed.

Support Category
A brief description of the support categories for DIGITAL's software products follows. The warranty period for DIGITAL-supported products will be for the 90 days following installation (except where local law requires otherwise). Please refer to *Software Product Descriptions* and the *Software Support Categories Addendum* for further details.

A   DIGITAL Supported - DIGITAL Installed.
B   DIGITAL Supported - CUSTOMER Installed.
C   CUSTOMER Supported.

PACKAGE SYSTEM MODEL NOMENCLATURE

OPERATING SYSTEM

A   IAS
E   RSTS/E
M   RSX-11M
N   RSX-11M-PLUS
R   RT-11
V   VAX/VMS

SYSTEM DEVICE

C   RP06
H   RK07
L   RL01
M   RL02
S   RX02
T   RM03
U   RM02

CONSOLE

A   LA38
B   VT100
C   LA120
L   LA36

REVISION

A-Z

SYSTEM CLASS

C   CORE
S   SOLID-STATE

PROCESSOR

V   11/03
W   11/23
2   11/04
3   1134A
4   11/44
6   11/60
7   11/70
A   11/780

LOAD DEVICE

A   TS11
B   TU77
H   RK07
L   RL01
M   RL02
S   RX02
V   TE16
W   TU45

**POWER/SOFTWARE
SUPPORT LEVEL**

A   120V/60Hz full support
D   240V/50Hz full support

E   120V/60Hz unsupported
J   240V/50Hz unsupported

K   120V/60Hz license only
N   240V/50Hz license only

If processor code is letter, then X.
If processor code is number, then 0.

SB11

SB11 PRODUCT OFFERINGS

All SB11 products feature:
- LSI-11/2 CPU
- 32Kb RAM
- 2 Serial line units
- 2 additional LSI-BUS interfaces
- 60 Hz clock
- Universal power supply
- Sockets for Boot ROM

SB11s are packaged one way (fully configured):
- *SB11 box*
    3.62 in. H x 13.38 in. W x 11.7 in. D
    (9.19cm H x 33.98cm W x 29.71cm D)
    These SB11s can be used as a table top unit or mounted on a surface in any plane.

Development work for an SB11 application can be carried out on an RT-11 V4 based system (such as PDP-11/03 or PDP-11/23). In addition, hardware options such as TU58-VA for mass storage, and choice of terminals are available.

SB11 MICROCOMPUTERS

SB11-DA — This SB11 configuration is set up for local communication applications and provides a total of 10 asynchronous serial lines (two DLV11-Js) for user equipment.

SB11-EA — This SB11 configuration is set up for remote communication applications and provides a total of 7 asynchronous serial lines (one DLV11-J, one DLV11-E) for user equipment. The DLV11-E provides one serial line with modem control for remote phone line applications.

SB11-FA — This SB11 configuration is set up for Lab/Instrumentation applications. This version has an IBV11 for interfacining with the IEEE STD 488-1975 instrument bus. The DLV11-E provides one serial line with modem control for remote phone line applications.

SB11 OPTIONS

SB11 PROCESSOR OPTION

KEV11 — Extended Arithmetic Option. Includes fixed and floating point instructions. Mounts on LSI-11/2 CPU board.

MASS STORAGE

TU58-VA — DECtape II dual drive cartridge tape unit provides 512Kb of storage. This table top option includes the necessary power cord, data cable and boot chips (MXV11-A2) for installation with the SB11.

TERMINALS

LA34-DA — Table-top DECwriter IV printing terminal. Includes universal power supply, standard EIA interface and EIA null modem cable. Variable horizontal tabs and margins, four character sizes, six line spacings and printhead adjustment. 9x7 dot matrix. Can handle single sheets and roll paper. 30-character per second print speed and baud rates up to 300 bits per second.

NOTE: Communication cables are not provided with the LA34 terminal and must be ordered separately. The recommended cables are: 1) BC21B for local connection of the LA34 to the DLV11 or MXV11.

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| LA38-GA | Table-top DECwriter IV printing terminal. Includes universal power supply, standard EIA interface and EIA null modem cable. Variable horizontal tabs and margins, four character sizes, six line spacings and printhead adjustment. 9x7 dot matrix. Can handle up to a 4-part computer form as well as single sheets and computer paper. 18-button numeric keypad, 30-character per second print speed and baud rates up to 300 bits per second. |

NOTE: Communication cables are not provided with the LA38 terminal and must be ordered separately. The recommended cables are: 1) BC21B for local connection of the LA38 to the DLV11 or MXV11.

| LA38-HA | Free-standing DECwriter IV printing terminal. Includes stand, universal power supply, standard EIA interface and EIA null modem cable. Variable horizontal tabs and margins, four character sizes, six line spacings and printhead adjustment. 9x7 dot matrix. Can handle up to a 4-part computer form as well as single sheets and roll paper. 18-button numeric keypad, 30-character per second print speed and baud rates up to 300 bits per second. |

NOTE: Communication cables are not provided with the LA38 terminal and must be ordered separately. The recommended cables are: 1) BC21B for local connection of the LA38 to the DLV11 or MXV11.

| LA120-DA | EIA version high speed interactive hardcopy free-standing terminal. Includes universal power supply. 180 characters per second print speed. Up to 9600 baud. 7x7 dot matrix. Contoured typewriter-styled keyboard with N-key rollover. |

NOTE: Communication cables are not provided with the LA120 terminal and must be ordered separately. The recommended cables are: 1) BC20N for local connection to the DLV11 or MXV11 (one BC20N is included with each SB11), and 2) BC05D for connection of the VT100 to a modem.

VIDEO TERMINALS

| VT100-AA
VT100-AB | High performance video display terminal. (Table-top) Features include double-width/double-size characters, 80 columns x 24 lines or 132 columns x 14 lines, detached keyboard, line-drawing graphic characters, smooth scrolling, split screen, reverse video or underline character attribute and composite video input/output. The VT100 operates on full-duplex asynchronous communication lines, and is supplied with a standard EIA interface. |

NOTE: Communication cables are not provided with the VT100 terminal and must be ordered separately. The recommended cables are: 1) BC20N for local connection to the DLV11 or MXV11 (one BC20N is included with each SB11), and 2) BC05D for connection of the VT100 to a modem.

| VT1XX-AB | Advanced Video option for VT100. Provides all four character attributes: BOLD, BLINK, UNDERLINE, and REVERSE VIDEO in any combination. Adds 10 additional lines of 132-column data for a total of 132 columns x 24 lines. |

PDT-11 PRODUCT OFFERINGS

The basic PDT-11's feature:
- Up to 60Kb RAM Memory
- PDP-11 code compatibilty

PDT-11s are packaged two ways:
- *Intelligent Terminals*
  11110 and 11130 are intelligent terminals which utilize the VT100 video display terminal, including advanced video option. 11130s come with the TU58 DECtape II minicartridge subsystem providing 512Kb of storage. Some versions of 11110s and 11130s include the DFT11 Cluster controller which supports three additional terminals.
- *Floppy Disk based systems*
  1115Xs are intelligent stand-alone systems with a choice of terminals. 1115Xs include RX01 dual floppy disk drives providing 512Kb of storage. Some versions include the DFT11 Cluster controller which supports three additional terminals.

RT²/PDT (Run-time RT-11 for the PDT) license is bundled into the 11130 and 1115X PDTs. This license, provided with each unit, allows the run time portion of RT-11 to be used on that PDT. Advanced software is available including RT-11 Operating System, and additional software, FORTRAN IV, BASIC-11 and MACRO-11 programming languages.

11110 Systems

MODEL	MEMORY	MASS STORAGE	TERMINAL	OTHER OPTIONS INCLUDED
11110-BC *11110-BD*	32Kb	None	VT100 (intelligent)	VT1XX-AB (Advanced Video)
11110-DC *11110-DD*	60Kb	None	VT100 (intelligent)	VT1XX-AB (Advanced Video)
				DFT11 (Cluster controller)

11130 Systems

MODEL	MEMORY	MASS STORAGE	TERMINAL	OTHER OPTIONS INCLUDED
11130-BC *11130-BD*	32Kb	TU58	VT100 (intelligent)	VT1XX-AB (Advanced Video)
11130-CC *11130-CD*	60Kb	TU58	VT100 (intelligent)	VT1XX-AB (Advanced Video)
11130-DC *11130-DD*	60Kb	TU58	VT100 (intelligent)	VT1XX-AB (Advanced Video)
				DFT11 (Cluster controller)

11151 Systems

MODEL	MEMORY	MASS STORAGE	TERMINAL	OTHER OPTIONS INCLUDED
11151-BE *11151-BF*	32Kb	RX01 (intelligent)	VT100	
11151-CE *11151-CF*	60Kb	RX01 (intelligent)	VT100	
11151-CH *11151-CJ*	60Kb	RX01 (intelligent)	VT100	DFT11 (Cluster controller)

11152 Systems

MODEL	MEMORY	MASS STORAGE	TERMINAL	OTHER OPTIONS INCLUDED
11152-BE *11152-BF*	32Kb	RX01 (intelligent)	LA120	
11152-CE *11152-CF*	60Kb	RX01 (intelligent)	LA120	
11152-CH *11152-CJ*	60Kb	RX01 (intelligent)	LA120	DFT11 (Cluster controller)

11153 Systems

MODEL	MEMORY	MASS STORAGE	TERMINAL	OTHER OPTIONS INCLUDED
11153-BE *11153-BF*	32Kb	RX01 (intelligent)	LA38	
11153-CE *11153-CF*	60Kb	RX01 (intelligent)	LA38	
11153-CH *11153-CJ*	60Kb	RX01 (intelligent)	LA38	DFT11 (Cluster controller)

11155 Systems

MODEL	MEMORY	MASS STORAGE	TERMINAL	OTHER OPTIONS INCLUDED
11155-BE *11155-BF*	32Kb	RX01 (intelligent)	LA36	
11155-CE *11155-CF*	60Kb	RX01 (intelligent)	LA36	
11155-CH *11155-CJ*	60Kb	RX01 (intelligent)	LA36	DFT11 (Cluster controller)

PDT-11 OPTION

ADVANCED VIDEO OPTION

VT1XX-AB   VT100 Advanced Video option. Provides all four character attributes: BOLD, BLINK, UNDERLINE, and REVERSE VIDEO in any combination. This option also provides for an alternate character set and has additional RAM available that allows the full 24 lines X 132 character display.
PREREQUISITE: 11151

PDP-11/03 PRODUCT OFFERINGS

All PDP-11/03 processors feature:
- Eight general-purpose registers
- Power fail/auto-restart
- Stack architecture
- ASCII console emulator allowing complete control of the computer via any ASCII terminal
- Single level vectored-priority interrupts
- Direct memory access (DMA)
- Set of over 400 instructions

PDP-11/03s are packaged three ways:
- *Small box*
  3.5 in. H x 19.0 in. W x 13.5 in. D
  (8.89cm H x 48.26cm W x 34.29cm D)
  These 11/03s include CPU and memory (expandable up to 64K bytes) in a cabinet mountable chassis.
- *Large box*
  5.2 in. H x 19.0 in. W x 26.7 in. D
  (13.3cm H x 48.26cm W x 67.96cm D)
  These 11/03s include CPU and memory (expandable up to 64Kb); KEV11 extended instruction and floating point instruction set, BDV11-AA bootstrap loader, diagnostic, PROM/ROM, terminator module in a cabinet mountable chassis.
- *Packaged system*
  These systems include a large box with RT-11 Operating System, CPU, memory, disk and choice of console terminal.

Advanced software is available including RT-11 and RSX-11S Operating Systems, FORTRAN and BASIC programming languages, plus a wide variety of utilities. In addition, hardware options such as expansion memories and peripheral devices are available.

PDP-11/03 MICROCOMPUTERS

MODEL	MEMORY	EXPANSION SPACE	POWER AVAILABLE Amps@+5V (90% Load)	BUS LOADS AVAILABLE
Small Box **MOS Memory**				
11/03-EA *11/03-EB*	8Kb	6 LSI-11 Double or 3 Quad slots	14.2	19
11/03-SC *11/03-SD*	32Kb	6 LSI-11 Double or 3 Quad slots	13.3	18
11/03-SE *11/03-SF*	64Kb	6 LSI-11 Double or 3 Quad slots	13.3	18
Core Memory				
11/03-FA *11/03-FB*	8Kb	4 LSI-11 Double or 2 Quad slots	7.2	18

Large Box
MOS Memory

11/03-LH *11/03-LJ*	32Kb	6 LSI-11 Quad or Double slots	16.0	17
11/03-LK *11/03-LL*	64Kb	6 LSI-11 Quad or Double slots	16.0	17

Note: All S & L models include KEV11.

PDP-11/03 PACKAGED SYSTEMS

Note: After the first fully supported system is purchased, PDP-11/03 packaged systems are also available at unsupported and license only software support levels. Shown here are the 120/60 and 240/50 fully supported systems. The other available power variations appear in the Price List.

RT-11 Operating Systems

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
MOS Memory							
SR-VXSSA-AA *SR-VXSSA-AD*	32Kb	RX02 RX02	4 LSI-11 slots*	8.4	15	1	LA38
(SR-VXSSA- BA) *(SR-VXSSA- BD)*							(VT100)
(SR-VXSSA- CA) *(SR-VXSSA- CD)*							(LA120)
SR-VXSSB-AA *SR-VXSSB-AD*	64Kb	RX02 RX02	4 LSI-11 slots*	7.7	15	1	LA38
(SR-VXSSB-BA) *(SR-VXSSB- BD)*							(VT100)
(SR-VXSSB- CA) *(SR-VXSSB-CD)*							(LA120)

*Any combination of 4 double or 4 quad LSI-11 modules may be mounted in this space.

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
SR-VXLLB-AA *SR-VXLLB-AD*	64Kb	RL01 RL01	3 LSI-11 slots*	4.5	15	1	LA38
(SR-VXLLB-BA) *(SR-VXLLB-BD)*							(VT100)
(SR-VXLLB-CA) *(SR-VXLLB-CD)*							(LA120)

*Any combination of 3 double or 3 quad LSI-11 modules may be mounted in this space.

PDP-11/23 PRODUCT OFFERINGS

All PDP-11/23 processors feature:
- Eight general-purpose registers
- Power fail/auto-restart
- Stack architecture
- Direct memory access (DMA)
- Set of over 400 instructions
- EIS (Extended Instruction Set)

PDP-11/23s are packaged two ways:
- *Box*

    5.2 in. H x 19.0 in. W x 26.7 in. D

    (13.3cm H x 48.26cm W x 67.96cm D)

    These 11/23s include CPU and memory; BDV11-AA bootstrap, diagnostic, bus terminator module, DLV11-J four line EIA interface.
- *Packaged system*

    These systems include a CPU box with operating system, memory, disk and choice of console terminal.

Advanced software is available including the RT-11 and RSX11-S/M Operating Systems, FORTRAN and BASIC programming languages, plus a wide variety of utilities. In addition, options are available for single and double precision floating point firmware, expansion memories and peripheral devices.

PDP-11/23 MICROCOMPUTERS

MODEL	MEMORY	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE
Box **MOS Memory**				
11/23-AA *11/23-AB*	128Kb	4 LSI-11 Quad or Double slots	12.3	15
11/23-AC *11/23-AD*	256Kb	2 LSI-11 Quad or Double slots	8.9	13

PDP-11/23 PACKAGED SYSTEMS

Note: After the first fully supported system is purchased, PDP-11/23 packaged systems are also available at unsupported and license only software support levels. Shown here are the 120/60 and 240/50 fully supported systems. The other available power variations appear in the Price List.

RT-11 Operating System

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
MOS Memory							
SR-WXSSA-AA *SR-WXSSA-AD*	128Kb	RX02 RX02	3 LSI-11 slots	12.45	14	1	LA38
(SR-WXSSA- BA) *(SR-WXSSA- BD)*							(VT100)
(SR-WXSSA- CA) *(SR-WXSSA-CD)*							(LA120)
SR-WXLLA-AA *SR-WXLLA-AD*	128Kb	RL01 RL01	2 LSI-11 slots	7.45	14	1	LA38
(SR-WXLLA- BA) *(SR-WXLLA-BD)*							(VT100)
(SR-WXLLA-CA) *(SR-WXLLA-CD)*							(LA120)

RSX-11M Operating Systems

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
MOS Memory							
SM-WXLLA-AA *SM-WXLLA-AD*	128Kb	RL01 RL01	2 LSI-11 slots	7.45	14	1	LA38
(SM-WXLLA-BA) *(SM-WXLLA- BD)*							(VT100)
(SM-WXLLA-CA) *(SM-WXLLA-CD)*							(LA120)

PDP-11/03 & PDP-11/23 PROCESSOR OPTIONS

KEF11-AA Single or Double precision Floating Point microcode chip for use with PDP-11/23. The microcode to implement this option resides in two chips on one 40-pin package. Mounts on 11/23 CPU board. **PREREQUISITE:** PDP-11/23

KEV11 Extended Arithmetic Option. Includes fixed and floating point instructions. Mounts on 11/03 CPU board. **PREREQUISITE:** PDP-11/03

KUV11-UH Writable Control Store Option with Upgraded CPU Module. **PREREQUISITE:** PDP-11/03L.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Quad slot	3.0	1	RT-11

BDV11-AA Bootstrap loader, Diagnostic PROM/ROM, Bus terminator module. **PREREQUISITE:** PDP-11/03 or PDP-11/23.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Quad slot	1.6	1	RT-11, RSX-11M

PDP-11/03 & PDP-11/23 MEMORY

MMV11-A 8K bytes Read/Write core memory, 1.15 microsecond cycle time. **PREREQUISITE:** PDP-11/03 (small box only).

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
2 LSI-11 Quad slots	7.0	1

MRV11-AA PROM/ROM memory unit, 32 IC sockets. Accepts 256 x 4 or 512 x 4 fusible link memory devices and masked ROM devices. Maximum capacity 8K bytes. Accepts MRV11-AC PROM chips. **PREREQUISITE:** PDP-11/03

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
LSI-11 Double slot	2.8	1

MRV11-AC PROM chip for use on MRV11-AA. PROM chip (512 x 4 array size). Mounts on MRV11-AA board. **PREREQUISITE:** MRV11-AA

MRV11-BA 1K byte expandable to 8K bytes, UV expandable PROM memory, NO memory chips included. **PREREQUISITE:** PDP-11/03.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
LSI-11 Double slot	0.58	1

MRV11-BC 1K x 8-bit UV PROM Chip unprogrammed for use with MRV11-BA. Mounts on MRV11-BA board. **PREREQUISITE:** MRV11-BA

MRV11-C   64Kb PROM/ROM module. Contains sixteen 24-pin sockets for user supplied masked ROMs, fusible link PROMs and Ultra-Violet erasable PROM.
PREREQUISITE: PDP-11/03 or PDP-11/23.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
LSI-11 Double slot	2.0	1

MSV11-B   8K byte Read/Write MOS Memory, 550 nanoseconds access time (max).
PREREQUISITE: PDP-11/03.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
LSI-11 Double slot	0.6	1

MSV11-DB   16K bytes dynamic Random Access Memory using 4K bytes RAM chips.
PREREQUISITE: PDP-11/03 or PDP-11/23.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
LSI-11 Double slot	1.7	1

MSV11-DC   32K bytes dynamic Random Access Memory using 8K bytes RAM chips.
PREREQUISITE: PDP-11/03 or PDP-11/23.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
LSI-11 Double slot	1.7	1

MSV11-DD   64K bytes dynamic Random Access Memory using 16K bytes RAM chips.
PREREQUISITE: PDP-11/03 or PDP-11/23 .

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
LSI-11 Double slot	1.7	1

MXV11-AA   8K bytes Random Access Memory, two asynchronous (RS-423,232C) EIA serial line units, two PROM sockets for (24 pin 5V EPROMs, PROMs, ROMs, maximum of 8Kb) or for 512K byte bootstrap PROM. 60 Hz crystal control clock. LSI-11 Multifunction Module.
PREREQUISITE: PDP-11/03 or PDP-11/23.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
LSI-11 Double slot	1.3	2

MXV11-AC   32K bytes Random Access Memory, two asynchronous (RS423, 232C) EIA serial line units, two PROM sockets for (24 pin 5v EPROMs, PROMs, ROMs maximum of 8Kb) or for 512 byte bootstrap PROM. 60 Hz crystal control clock. LSI-11 Multifunction Module.
PREREQUISITE: PDP-11/03 or PDP-11/23.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
LSI-11 Double slot	1.3	2

MXV11-A2   Bootstrap PROMs for the MXV11-AA(AC) to boot the RXV21 (RX02), RLV11 (RL01), RXV11 (RX01), RKV11 (RK05) or TU58. Includes CPU diagnostics. Mounts on MXV11-AA(AC). LSI-11 Bootstrap ROM.
PREREQUISITE: MXV11-AA(AC).

PB11-AY   Desk Top Universal PROM Programmer with 25' (7.6m) cable for connection to RT-11 (V3B or later) system (11/03 to 1134A) using a serial line interface (DLV11-E/F/J or DL11-W/E) and RS-232C cable. Includes Class C software on RX01 disk. Adapter kit and RS-232C cable must be purchased separately.
PREREQUISITE: RT-11 System

PB11-AQ   Same as PB11-AY except software on RL01 disk.

PB11K-AA   Adapter kit for 82S129, 82S131 fusible link PROMs.
                 PREREQUISITE: PB11-AY

PB11K-AB   Adapter kit for 2708 UV PROMs.
                 PREREQUISITE: PB11-AY

PB11K-AC   Adapter kit for 82S181, 82S191 fusible link PROMs.
                 PREREQUISITE: PB11-AY

PB11K-AD   Adapter kit for 2716, 2732 UVPROMs.
                 PREREQUISITE: PB11-AY

REV11-A   RX01, RK05, Boot, MOS Memory refresh, system diagnostics, BUS terminator.
                 PREREQUISITE: PDP-11/03

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
LSI-11 Double slot	1.6	1

REV11-C   Floppy Disk Boot, MOS Memory refresh, system diagnostics, without BUS terminator.
                 PREREQUISITE: PDP-11/03

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
LSI-11 Double slot	1.0	1

COMMUNICATIONS OPTIONS

SINGLE LINE ASYNCHRONOUS INTERFACES

DLV11-F   Asynchronous line interface module. Supports 20mA current loop or EIA/CCITT interface levels.
                 Selectable stop and data bits; data rates from 50 to 19,200 bits per second. Does not provide
                 modem control. Requires cable.
                 PREREQUISITE: PDP-11/03 or PDP-11/23

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Double slot	1.5	1	RT-11, RSX-11M

DLV11-FA   20mA asynchronous line interface module. Selectable stop and data bits; data rates from 50 to
                 19,200 bits per second. Does not provide modem control. Includes BC05M-04 cable.
                 PREREQUISITE: PDP-11/03 or PDP-11/23

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Double slot	1.5	1	RT-11, RSX-11M

DLV11-FB   EIA/CCITT asynchronous line interface module. Selectable stop and data bits; data rates from 50
                 to 19,200 bits per second. Does not provide modem control. Includes BC03L-05 cable.
                 PREREQUISITE: PDP-11/03 or PDP-11/23

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Double slot	1.5	1	RT-11, RSX-11M

DLV11   Serial interface unit. Optically-isolated 20mA current loop or EIA/CCITT interface levels. Selectable stop and data bits; data rates from 50 to 9600 bits per second. Does not provide modem control. Requires cable.
PREREQUISITE: PDP-11/03 or PDP-11/23

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Double slot	1.0	1	RT-11, RSX-11M

DLV11-E   Asynchronous line interface module with EIA interface levels. Selectable stop and data bits; baud rates from 50 to 19,200 bits per second. Provides full modem control. Requires cable.
PREREQUISITE: PDP-11/03 or PDP-11/23

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Double slot	1.5	1	RT-11, RSX-11M

DLV11-EB   Asynchronous line interface module with EIA interface levels. Selectable stop and data bits; baud rates from 50 to 19,200 bits per second. Provides full modem control. Includes BC0IV-25 cable.
PREREQUISITE: PDP-11/03 or PDP-11/23

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Double slot	1.5	1	RT-11, RSX-11M

FOUR CHANNEL ASYNCHRONOUS SERIAL LINE UNIT

DLV11-J   4-channel asynchronous serial line unit. Serial line compatibility with EIA RS-232C and RS-423,422 or current loop. Character formats: 7 or 8 data bits, 1 or 2 stop bits, parity or no parity, and even or odd parity. Baud rates from 150 to 38,400 bits per second. Does not provide modem control. Requires cables.
PREREQUISITE: PDP-11/03 or PDP-11/23

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Double slot	1.5	1	RT-11, RSX-11M (one DLV11-J per system)

DLV11-KA   EIA to 20mA converter with BC21A-03 cable for the DLV11-J.
Provides 110 bits/sec, 20mA operation.
PREREQUISITE: DLV11-J

SINGLE LINE SYNCHRONOUS INTERFACE

DUV11-DA   Single line interface for connecting LSI-11s to synchronous modems or lines. Provides serial-to-parallel and parallel-to-serial data conversion, voltage level conversion, and modem control for half- or full-duplex operation. It is also capable of transmitting EIA/CCITT data at 9600 bits per second maximum (limited by modem and data set interface level converters). Includes BC05C-25 cable.
PREREQUISITE: PDP-11/03 or PDP-11/23

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Quad slot	1.2	1	RT-11, RSX-11M

ASYNCHRONOUS MULTIPLEXER (PROGRAMMED I/O)

DZV11-B   Asynchronous 4 line multiplexer for EIA/CCITT terminals or lines. Features programmable speeds (up to 9600 bits per second) and formats on a per-line basis. Includes data set control for use with BELL 103 or 113 modems or equivalent. Includes 7.6m (25 ft.) of cable (BC11U-25) for connection to modem.
PREREQUISITE: PDP-11/03 or PDP-11/23

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Double slot	1.15	1	RT-11, RSX-11M (one DZV11 per system)

PDP-11/03 & PDP-11/23 CABINETS

H9610-AA
H9610-AB   30 inch cabinet frame, 24.5 inch internal mounting space. Includes 871 power control.

H9612-AA
H9612-AB   40 inch cabinet frame **without top**, 10.5 inch top load for RL01s with 24.5 inch internal mounting space remaining. Includes 871 power control.

H9613-AA
H9613-AB   40 inch cabinet frame with top, 35 inch internal mounting space. Includes 871 power control.

H9616-BB
H9616-BC   30 inch expansion cabinet. Mounts to right of H9610 cabinet. Includes 871 power control.

H9617-BB
H9617-BC   40 inch expansion cabinet **without top**. Mounts to right of H9612 or H9613 cabinet. Includes 871 power control.

H9618-BB
H9618-BC   40 inch expansion cabinet with top. Mounts to right of H9612 or H9613 cabinet. Includes 871 power control.

PDP-11/03 & PDP-11/23 EXPANSION BOXES

BA11-ME
BA11-MF   Small expansion box 3.5″ H x 19″ W x 15″ D, (8.9cm H x 48.33cm W x 38.1cm D) includes one four rows by four slots LSI-11 backplane and power supply. Accepts 8 double or 4 quad modules. Cables not included.
PREREQUISITE: PDP-11/03

Mounting Code	Power Available Amps@+5V	Bus Loads Drawn
03 PAN	16.2	N/A

BA11-NE
BA11-NF   PDP-11/03L expansion box 5.19″ H x 19″ W x 22.7″ D, (13.2cm H x 48.33cm W x 57.8cm D) includes one nine (9) slot LSI-11 backplane and 240W power supply. Cables not included.
PREREQUISITE: PDP-11/03 or PDP-11/23.

Mounting Code	Power Available Amps@+5V	Bus Loads Drawn
SM PAN	22.0	N/A

PDP-11/03 & PDP-11/23 TERMINATOR MODULE

TEV11   LSI-11 Bus terminator. Required when a BA11-ME,MF expansion box is added. Not required if an REV11-A or BDV11-A Terminator module is included in configuration.

Mounting Code	Power Available Amps@+5V	Bus Loads Drawn
LSI-11 Double slot	N/A	N/A

PDP-11/03 & PDP-11/23 EXPANSION CABLES

BCV1A-10   10 ft. (1.0m) LSI-11 Bus expansion cable. Required when a second BA11 expansion box is added to a PDP-11/03 or PDP-11/23 configuration (3 box system).
PREREQUISITE: LSI-11 Double slot (1 in each BA11 box).

BCV1B-06   6 ft. (1.8m) LSI-11 Bus expansion cable. Required when a BA11 expansion box is added to a PDP-11/03 or PDP-11/23 configuration.
PREREQUISITE: LSI-11 Double slot (1 in 11/03 or 11/23, 1 in BA11 box).

PDP-11/03 & PDP-11/23 COMMUNICATIONS CABLES

BC01V-25   25 ft. (7.6m) RS-232C I/O cable with H856 40-pin Berg and RS-232 male connectors, 15 conductor. Used with DLV11-F for full or limited modem control.

BC03L-05   5 ft. (1.52m) cable for local, serial EIA interfaces.

BC03M-25   25 ft. (7.6m) Null modem cable with RS-232C female connectors both ends.

BC04Z-XX   The following lengths are available: 10 ft. (3.04m), 15 ft. (4.56m), 25 ft. (7.6m). Cable for parallel interfaces.

BC05C-25   25 ft. (7.6m) RS-232C I/O cable with H856 40-pin Berg and RS-232C male connectors, 25 conductor. Used with DLV11-E/F for full or limited modem control.

BC05D-25   25 ft. (7.6m) RS-232C extension cable, RS-232C male to RS-232C female, 25 conductor.

BC05M-2C   2.2 ft. (.67m) Current loop I/O cable with H856 40-pin Berg and Mate-n-lock connectors. Used with DLV11-F for 20mA current loop applications.

BC05W-XX   5-pin conductor signal cable for DRV11-J. Two required for each DRV11-J. The following lengths are available: 10 ft. (3.04m) or 25 ft. (7.6m).

BC08R-01   1 ft. (.91m) 40-conductor flat ribbon cable with F-berg at one end and unterminated at the other end.

BC08R-10   12 ft. (3.7m) General purpose 40-conductor flat ribbon cable with F-berg at both ends.

BC20N-05   5 ft. (1.5m) RS-232C null modem cable with 10-pin AMP and RS-232C female connector. Used with DLV11-J to connect directly to RS-232C male cable from terminal.

BC20M-50   50 ft. (15.2m) RS-422 I/O cable with 10-pin AMP connectors both ends. For high speed (up to 38.4Kb) communication between DLV11-Js.

BC21B-05   5 ft. (1.5m) RS-232C I/O cable with 10-pin AMP and RS-232 connectors. Used with DLV11-J.

PDP-11/03 & PDP-11/23 REAL-TIME I/O OPTIONS

AAV11-A   4-channel 12-bit digital-to-analog converter and scope control.
PREREQUISITE: PDP-11/03 or PDP-11/23

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Quad slot	1.5	1	RT-11, RSX-11M

ADV11-A   12-bit 16-channel single ended (or 8-channel quasi-differential) analog-to-digital converter.
PREREQUISITE: PDP-11/03 or PDP-11/23

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Quad slot	2.0	1	RT-11

DRV11   Parallel line interface unit. 16-bit diode-clamped input; 16-bit latched-drive output. Protocol and control signals. Requires cable.
PREREQUISITE: PDP-11/03 or PDP-11/23

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Double slot	0.9	1	RT-11, RSX-11M

DRV11-B   Parallel line DMA interface unit. Single-cycle rate: 500K bytes/second. Protocol and control signals. Requires cable.
PREREQUISITE: PDP-11/03 or PDP-11/23

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Quad slot	1.9	1	RT-11

DRV11-P   Interface foundation module for custom interfaces. Includes LSI-11 Bus interface and wire-wrappable area for customer interfacing.
PREREQUISITE: PDP-11/03 or PDP-11/23

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Quad slot	1.0	1	RT-11

DRV11-J   General pupose parallel multiple line interface. Four 16-bit ports, one port with bit interruptable capability for all 16 lines. Latched tri-state D type flip flop outputs, unlatched inputs. Requires two BC05W cables.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Double slot	1.8	1	None

IBV11-A   IEEE standard #488-1975 instrument bus interface; includes 4m BN11A-04 cable.
PREREQUISITE: PDP-11/03 or PDP-11/23

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Double slot	0.8	1	RT-11

PDP-11/03 & PDP-11/23 CLOCK OPTION

KWV11-A   16-bit programmable real-time clock, one of four programmable modes user selectable, one of five crystal-controlled frequencies.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
LSI-11 Quad slot	1.75	1	RT-11

PDP-11/04 PRODUCT OFFERINGS

All PDP-11/04 processors feature:
- Eight general-purpose registers
- Power fail/auto-restart
- Stack architecture
- ASCII console emulator allowing complete control of the computer via any ASCII terminal
- Multifunction ROM module with ROM bootstrap loader
- 4-level vectored priority interrupts
- Direct memory access (DMA)
- Set of over 400 instructions
- Automatic self-test feature

PDP-11/04s are packaged two ways:
- *Small box*
   5.25 in. H x 19.0 in. W x 25.0 in. D
   (13.3cm H x 48.4cm W x 63.7cm D)
   These 11/04s include CPU and memory (expandable up to 64K bytes) in a cabinet mountable chassis.
- *Large box*
   10.5 in. H x 19.0 in. W x 26.5 in. D
   (26.5cm H x 48.4cm W x 67.6cm D)
   These 11/04s include CPU and memory in a cabinet mountable chassis.

Advanced software is available including RT-11, RSX11-S/M Operating Systems, FORTRAN and BASIC programming languages, plus a wide variety of utilities. In addition, hardware options are available such as cables, expansion memories and peripheral devices.

PDP-11/04 MINICOMPUTERS

MODEL	MEMORY	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE
Small Box **MOS Memory**				
11/04-BC *11/04-BD*	16Kb	5 Hex slots 2 Quad slots	22.0	17
11/04-DC *11/04-DD*	32Kb	5 Hex slots 2 Quad slots	22.0	17
11/04-LC *11/04-LD*	64Kb	4 Hex slots 2 Quad slots	20.0	16
Core Memory				
11/04-FC *11/04-FD*	16Kb	4 Hex slots 2 Quad slots	22.0	17
11/04-HC *11/04-HD*	32Kb	4 Hex slots 2 Quad slots	20.0	17
11/04-JC *11/04-JD*	64Kb	4 Hex slots 2 Quad slots	19.0	17

Large Box
MOS Memory

11/04-DH *11/04-DJ*	32Kb	SU 1-2: 5 Hex slots, 2 Quad slots SU 3-5: 3 SUs	22.0 32.0	17
11/04-LH *11/04-LJ*	64Kb	SU 1-2: 4 Hex slots, 2 Quad slots SU 3-5: 3 SUs	20.0 32.0	16

Core Memory

11/04-HH *11/04-HJ*	32Kb	SU 1-2: 4 Hex slots, 2 Quad slots SU 3-5: 3 SUs	20.0 32.0	17
11/04-JH *11/04-JJ*	64Kb	SU 1-2: 4 Hex slots, 2 Quad slots SU 3-5: 3 SUs	19.0 32.0	17

PDP-1134A PRODUCT OFFERINGS

All PDP-1134A processors feature:
- Eight general-purpose registers
- Power fail/auto-restart
- Stack architecture
- ASCII console emulator allowing complete control of the computer via any ASCII terminal
- Multifunction ROM module with ROM bootstrap loader
- Hardware multiply/divide
- 4-level vectored priority interrupts
- Hardware memory management
- Direct memory access (DMA)
- EIS (Extended Instruction Set)
- Set of over 400 instructions
- Automatic self-test feature

PDP-1134As are packaged three ways:
- *Small box*
    5.25 in. H x 19.0 in. W x 25.0 in. D
    (13.3cm H x 48.4cm W x 63.7cm D)
    These 1134As include CPU and memory (expandable up to 256K bytes with MS11-LD) in a cabinet mountable chassis.
- *Large box*
    10.5 in. H x 19.0 in. W x 26.5 in. D
    (26.5cm H x 48.4cm W x 67.6cm D)
    These 1134As include CPU and memory in a cabinet mountable chassis.
- *Packaged system*
    These systems include a large box CPU with operating system, memory, disk and choice of console terminal.

Advanced software is available including the RT-11, RSX-11M and RSTS/E Operating Systems, FORTRAN and BASIC programming languages, plus a wide variety of utilities. In addition, hardware options are available such as cables, expansion memories and peripheral devices.

PDP-1134A MINICOMPUTERS

MODEL	MEMORY	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE
Small Box **MOS Memory**				
1134A-DC *1134A-DD*	32Kb	3 Hex slots, 3 Quad slots	15.0	16
1134A-LC *1134A-LD*	64Kb	2 Hex slots 3 Quad slots	13.0	15
1134A-WC *1134A-WD*	128Kb	4 Hex slots 2 Quad slots	15.0	17
1134A-XC *1134A-XD*	128Kb †	4 Hex slots	10.0	15
1134A-YC *1134A-YD*	256Kb †	4 Hex slots	10.0	15
1134A-ZC *1134A-ZD*	256Kb	4 Hex slots 2 Quad slots	15.0	17

Core Memory

1134A-HC *1134A-HD*	32Kb	2 Hex slots 3 Quad slots	13.0	16
1134A-JC *1134A-JD*	64Kb	2 Hex slots 3 Quad slots	12.0	16

**Large Box
MOS Memory**

1134A-DE *1134A-DF*	32Kb †	SU 1-2: 3 Hex slots, 1 Quad slot SU 3-5: 3 SUs	12.0 32.0	14
1134A-DH *1134A-DJ*	32Kb	SU 1-2: 3 Hex slots, 3 Quad slots SU 3-5: 3 SUs	15.0 32.0	16
1134A-LE *1134A-LF*	64Kb †	SU 1-2: 2 Hex slots, 1 Quad slot SU 3-5: 3 SUs	8.0 32.0	13
1134A-LH *1134A-LJ*	64Kb	SU 1-2: 2 Hex slots, 3 Quad slots SU 3-5: 3 SUs	13.0 32.0	15
1134A-WE *1134A-WF*	128Kb	SU 1-2: 4 Hex slots, 2 Quad slot SU 3-5: 3 SUs	15.0 32.0	17
1134A-XE *1134A-XF*	128Kb †	SU 1-2: 4 Hex slots SU 3-5: 3 SUs	10.0 32.0	15
1134A-YE *1134A-YF*	256Kb †	SU 1-2: 4 Hex slots SU 3-5: 3 SUs	10.0 32.0	15
1134A-ZE *1134A-ZF*	256Kb	SU 1-2: 4 Hex slots, 2 Quad slot SU 3-5: 3 SUs	15.0 32.0	17

† Includes a DL11-W line frequency clock with serial line interface and a KY11-LB programmers console.

Core Memory

MODEL	MEMORY	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE
1134A-HE *1134A-HF*	32Kb †	SU 1-2: 2 Hex slots, 1 Quad slot SU 3-5: 3 SUs	8.0 32.0	14
1134A-HH *1134A-HJ*	32Kb	SU 1-2: 2 Hex slots, 3 Quad slots SU 3-5: 3 SUs	13.0 32.0	16
1134A-JE *1134A-JF*	64Kb †	SU 1-2: 2 Hex slots, 1 Quad slot SU 3-5: 3 SUs	7.0 32.0	14
1134A-JH *1134A-JJ*	64Kb	SU 1-2: 2 Hex slots, 3 Quad slots SU 3-5: 3 SUs	12.0 32.0	16

† Includes a DL11-W line frequency clock with serial line interface and a KY11-LB programmers console.

PDP-1134A Packaged Systems

Note 1. The power and bus loads for the floating point processor (FP11-A) and cache memory (KK11-A) options have already been configured into the 1134A packaged systems. If these slots are not used for the FPP and cache memory, a Hex board maybe inserted in each location.

Note 2. After the first fully supported system is purchased, PDP-1134A packaged systems are also available at unsupported and license only software support levels. Shown here are the 120/60 and 240/50 fully supported systems. The other available power variations appear in the Price List.

RT-11 Operating Systems

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
MOS Memory							
			CPU				
SR-30LLB-AA *SR-30LLB-AD*	128Kb	RL01 RL01	SU 1-2: 2 Hex slots 1 Quad slot SU 3-5: 6 Hex slots, 1 Quad slots, 1 SU	2.7 22.4	13	1	LA38
(SR-30LLB-BA) *(SR-30LLB-BD)*							(VT100)
(SR-30LLB-CA) *(SR-30LLB-CD)*							(LA120)
			CPU				
SR-30SSB-AA *SR-30SSB-AD*	128Kb	RX02 RX02	SU 1-2: 2 Hex slots, 1 Quad slot SU 3-5: 7 Hex slots, 1 SU	2.7 25.9	13	1	LA38
(SR-30SSB-BA) *(SR-30SSB-BD)*							(VT100)
(SR-30SSB-CA) *(SR-30SSB-CD)*							(LA120)

Core Memory

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
CR-30LLA-LA *CR-30LLA-LD*	64Kb	RL01 RL01	**CPU** SU 1-2: 3 Hex slots, 1 Quad slot SU 3-5: 3 Hex slots, 2 Quad slots, 1 SU	4.5 17.7	12	1	LA36
CR-30SSA-LA *CR-30SSA-LD*	64Kb	RX02 RX02	**CPU** SU 1-2: 3 Hex slots, 1 Quad slot SU 3-5: 4 Hex slots, 1 Quad slot, 1 SU	4.5 21.2	12	1	LA36

RSX-11M Operating System

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
MOS Memory							
SM-30HHB-CA *SM-30HHB-CD*	128Kb	RK07 RK07	**CPU** SU 1-2: none SU 3-5: 2 Hex slots, 1 SU	none 16.7	13	1	LA120
SM-30UVB-CA *SM-30UVB-CD*	256Kb	RM02 TE16	**CPU** SU 1-2: 2 Hex slots, 1 Quad slot SU 3-5: 7 Hex slots, 1 Quad slot, 1 SU **BA11-K** SU 1-2: none SU 3-5: 1 SU	2.7 28.7 none 11.7	12	2	LA120 BA11-K
SM-30LLB-AA *SM-30LLB-AD*	128Kb	RL01 RL01	**CPU** SU 1-2: 2 Hex slots, 1 Quad slot SU 3-5: 6 Hex slots, 1 Quad slot, 1 SU	2.7 22.4	13	1	LA38
(SM-30LLB-BA) *(SM-30LLB-BD)*							(VT100)
(SM-30LLB-CA) *(SM-30LLB-CD)*							(LA120)
SM-30MMA-AA *SM-30MMA-AD*	256Kb	RL02 RL02	**CPU** SU 1-2: 2 Hex slots, 1 Quad slot SU 3-5: 6 Hex slots, 1 Quad slot, 1 SU	2.7 22.4	13	1	LA38
(SM-30MMA-BA) *(SM-30MMA-BD)*							(VT100)
(SM-30MMA-CA) *(SM-30MMA-CD)*							(LA120)

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE		POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
SM-30UAA-CA	256Kb	RM02	**CPU**			12	1	LA120
SM-30UAA-CD		TS11	SU 1-2:	none	none			
			SU 3-5:	1 Hex slots, 1 Quad slot	15.2			

Core Memory

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE		POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
CM-30HHA-LA	128Kb	RK07	**CPU**			11	1	LA36
CM-30HHA-LD		RK07	SU 1-2:	3 Hex slots, 1 Quad slot	4.5			
			SU 3-5:	2 Hex slots, 2 Quad slots, 1 SU	19			BA11-K
			BA11-K					
			SU 1-2:	2 Hex slots, 1 Quad slot	11.7			
			SU 3-5:	3 SU	25			
CM-30LLA-LA	64Kb	RL01	**CPU**			12	1	LA36
CM-30LLA-LD		RL01	SU 1-2:	3 Hex slots, 1 Quad slot	4.5			
			SU 3-5	3 Hex slots, 2 Quad slots, 1 SU	17.7			

RSTS/E Operating System

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE		POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
MOS Memory								
SE-30HHB-CA	256Kb	RK07	**CPU**			13	1	LA120
SE-30HHB-CD		RK07	SU 1-2:	none	none			
			SU 3-5:	2 Hex slots 1 SU	16.7			
SE-30LLB-CA	128Kb	RL01	**CPU**			13	1	LA120
SE-30LLB-CD		RL01	SU 1-2:	2 Hex slots 1 Quad slot	2.7			
			SU 3-5:	6 Hex slots 1 Quad slots 1 SU	22.4			
SE-30MMA-CA	256Kb	RL02	**CPU**			13	1	LA120
SE-30MMA-CD		RL02	SU 1-2:	2 Hex slots 1 Quad slot	2.7			
			SU 3-5:	6 Hex slots, 1 Quad slot, 1 SU	22.4			
SE-30UVB-CA	256Kb	RM02	**CPU**			12	2	LA120
SE-30UVB-CD		TE16	SU 1-2:	2 Hex slots 1 Quad slot	2.7			
			SU 3-5:	7 Hex slots 1 Quad slot 1 SU	28.7			BA11-K
			BA11-K					
			SU 1-2:	none	none			
			SU 3-4:	1 SU	11.7			

PDP-11/04 & PDP-1134A PROCESSOR OPTIONS

FP11-A — Floating point processor for the PDP-1134A. *The FP11-A must mount in the third Hex slot, next to processor.* **NOTE: The power and the bus loads for the FP11-A option have been configured into the 1134A packaged systems.**
PREREQUISITE: PDP-1134A system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
1 Hex slot	7.0	1	RT-11, RSX-11M, RSTS/E

KE11-B — Extended Arithmetic Element (EAE). Provides extended manipulation of signed integer multiply and divide, multiple shifts, and normalization.
PREREQUISITE: PDP-11/04 system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
1 Hex slot	4.0	1	RT-11, RSX-11M, RSTS/E

PDP-1134A MEMORY OPTION

KK11-A — Cache memory consisting of a 2K bytes high-speed random-access memory (RAM). *NOTE: The KK11-A must mount in the fifth Hex slot in the CPU backplane.* **NOTE: The power and bus loads for the KK11-A option have been configured into the 1134A RL01, RM02, RX02 and RK07 based system.**
PREREQUISITE: PDP-1134A systems.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
1 Hex slot	4.0	1

PDP-11/04 & 1134A MOS MEMORY

MS11-FP — 16K bytes parity MOS memory with control. 700 nanoseconds cycle time. Requires M7850 for PDP-11/04 parity implementation.
PREREQUISITE: PDP-11/04 system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
1 Hex slot	2.0	1

MS11-JP — 32K bytes MOS memory.
PREREQUISITE: PDP-11/04 or PDP-1134A system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
1 Hex slot	2.0	1

MS11-LB — 128K bytes of parity MOS memory.
PREREQUISITE: PDP-1134A system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
1 Hex slot	3.1	1

MS11-LD — 256K bytes of parity MOS memory.
PREREQUISITE: PDP-1134A system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
1 Hex slot	3.1	1

PDP-11/04 & 1134A CORE MEMORY

MM11-DP   32K bytes core memory.
                   PREREQUISITE: PDP-11/04 or PDP-1134A system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
2 Hex slots	3.0	1

MM11-YP   64K bytes core memory.
                   PREREQUISITE: PDP-11/04 or PDP-1134A system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
2 Hex slots	5.0	1

PDP-11/04 & PDP-1134A MEMORY OPTIONS

M7850   Parity control for memory on PDP-11/04 or PDP-1134A systems. One M7850 is required for each
                   DD11 that contains MM11-DP, MM11-YP or MS11-JP memory.
                   PREREQUISITE: PDP-11/04 or PDP-1134A system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
DBL slot	1.0	1

KY11-LB   Programmer's console for the PDP-11/04 and PDP-1134A.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
1 Quad slot	3	1

H775-A   Battery backup for MOS memory in a 5.25″ (13.3 cm) BA11-L chassis.
                   PREREQUISITE: PDP-11/04 or PDP-1134A system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
SM PAN	N/A	N/A

H775-CA   Battery backup for MOS memory in a 10.5″ (26.5 cm) BA11-K chassis.
H775-CB   **PREREQUISITE:** PDP-11/04 or PDP-1134A system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
SM PAN	N/A	N/A

PDP-11/44 PRODUCT OFFERINGS

All PDP-11/44 processors feature:
- 10 General Registers
- Three Processor Modes: Kernel, Supervisor, and User
- Separate Instruction Space and Data Space
- Memory Management and UNIBUS Map for up to 1Mb of memory support
- Automatic Diagnostic Bootstrap Loader
- Microprocessor-controlled ASCII console
- Full UNIBUS with vectored interrupts and Direct Memory Access (DMA) capability
- 8192 byte high speed cache memory buffer
- Line frequency clock
- Single line asynchronous EIA/CCITT interfaces
- TU58 serial line interface

PDP-11/44s are packaged three ways:
- *Box level*
  10.5in. H x 19.0in. W x 25.0in. D
  (26.5cm H x 48.4cm W x 63.7cm D)
  These 11/44s include CPU and memory (expandable up to 1M bytes with MS11-Ms) in a cabinet mountable chassis.
- *Kernel system*
  41.75in. H x 21.25in. W x 30in. D
  (106cm H x 54.1cm W x 76.2cm D)
  These 11/44s include CPU, memory, TU58 DECtape II, and power controller in a cross products cabinet.
- *Packaged system*
  These systems include a Kernel system with operating system, mass storage and an LA120 console terminal.

Advanced software is available including the RSX-11M, RSX-11M-PLUS and RSTS/E Operating Systems, also a wide range of languages including COBOL-11, BASIC-11, BASIC-PLUS, BASIC-PLUS-2, FORTRAN IV, FORTRAN IV-PLUS, APL-11, CORAL, and MACRO-11, plus a wide variety of utilities. These systems are complemented by powerful data management facilities including: RMS-11K, DATATRIEVE-11, DBMS-11. PDP-11/44 systems support DECnet.
Hardware options are available such as cables, expansion memories and peripheral devices.

PDP-11/44 BOX LEVEL CONFIGURATION

MODEL	MEMORY	EXPANSION SPACE	POWER AVAILABLE AMPS			BUS LOADS AVAILABLE
			@+5V	@+15V	@-15V	
MOS Memory						
11/44-CA	256Kb	1 Hex slot	49.7	2.95†	2.95†	18
11/44-CB		1 Quad slot				
		3 SUs				

PDP-11/44 KERNEL CONFIGURATION

MODEL	MEMORY	EXPANSION SPACE	POWER AVAILABLE AMPS			BUS LOADS AVAILABLE	OTHER OPTIONS INCLUDED
			@+5V	@+15V	@-15V		
MOS Memory							
11X44-CA	256 Kb	1 Hex slot	49.7	2.95†	2.95†	18	Dual TU58
11X44-CB		1 Quad slot					H9642 Cab
		3 SUs					

† Any current not used @ +15V or -15V is available for use @ +5V. The amount of this additional current @ +5V is five times the sum of the unused +15V and -15V currents.

PDP-11/44 Packaged Systems

Note: After the first fully supported system is purchased, PDP-11/60 packaged systems are also available at unsupported and license only software support levels. Shown here are the 120/60 and 240/50 fully supported systems. The other available power variations appear in the Price List.

RSX-11M Operating Systems

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE	POWER AVAILABLE AMPS			BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
				@+5V	@+15V	@-15V			
MOS Memory									
SM-40MMA-CA *SM-40MMA-CD*	256Kb	RL02 RL02	SU 1-6:1 Quad slot 3 SUs	44.7	2.45†	2.45†	17	2	LA120
SM-40HHA-CA *SM-40HHA-CD*	256Kb	RK07 RK07	SU 1-6:3 Hex slots 2 Quad slots 1 SU	37.7	2.77†	2.55†	17	2 plus RK07 Disk	LA120
SM-40UAA-CA *SM-40UAA-CD*	256Kb	RM02 TS11	SU 1-6:1 Quad slot 1 SU	36.2	2.95†	2.55†	16	2 plus RM02 Disk	LA120
SM-40MMB-CA *SM-40MMB-CD*	256Kb	RL02 RL02	SU 1-6:1 Quad slot 3 SUs	37.4	2.45†	2.45†	17	2	LA120 FP11-F

RSX-11M-PLUS Operating Systems

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE	POWER AVAILABLE AMPS			BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
				@+5V	@+15V	@-15V			
MOS Memory									
SN-40UAA-CA *SN-40UAA-CD*	256Kb	RM02 TS11	SU 1-6:1 Quad slot, 1 SU	36.2	2.95†	2.55†	16	2 plus RM02 Disk	LA120

† Any current not used @ +15V or -15V is available for use @ +5V. The amount of this additional current @ +5V is five times the sum of the unused +15V and -15V currents.

RSTS/E Operating Systems

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE	POWER AVAILABLE AMPS @+5V	@+15V	@-15V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
MOS Memory									
SE-40MMA-CA *SE-40MMA-CD*	256Kb	RL02 RL02	SU 1-6 1 Quad slot 3 SUs	44.7	2.45†	2.45†	17	2	LA120
SE-40HHA-CA *SE-40HHA-CD*	256Kb	RK07 RK07	SU 1-6:3 Hex slots 2 Quad slots 1 SU	37.7	2.77†	2.55†	17	2 plus RK07 Disk	LA120
SE-40UAA-CA *SE-40UAA-CD*	256Kb	RM02 TS11	SU 1-6:1 Quad slot 1 SU	36.2	2.95†	2.55†	16	2 plus RM02 Disk	LA120
SE-40UAB-CA *SE-40UAB-CD*	512Kb	RM02 TS11	SU 1-6:1 Quad slot 1 SU	21.9	2.95†	2.55†	15	2 plus RM02 Disk	LA120 KE44-A COBOL-11

† Any current not used @ +15V or -15V is available for use @ +5V. The amount of this additional current @ +5V is five times the sum of the unused +15V and -15V currents.

PDP-11/44 PROCESSOR OPTIONS

KE44-A Commercial Instruction Set (CIS) processor.
PREREQUISITE: PDP-11/44 systems.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
2 reserved slots	9.6	N/A

FP11-F Floating point processor for the PDP-11/44. 17 digits of precision. Performs hardware operations on 32-bit and 64-bit floating point numbers as well as integer to floating point conversions.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
1 reserved slot	7.3	N/A

PDP-11/44 MEMORY

MS11-MB   256K bytes ECC MOS memory.
PREREQUISITE: PDP-11/44.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
1 reserved slot	4.8	1

MS11-MC   512K bytes ECC MOS memory.
PREREQUISITE: PDP-11/44.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
2 reserved slots	9.6	2

MS11-MD   768K bytes ECC MOS memory.
PREREQUISITE: PDP-11/44.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
3 reserved slots	14.4	3

BATTERY BACKUP OPTION

H7750-BA*(BD)*   Battery backup for MS11-M ECC MOS memory. 5.5in (13.9cm) chassis.
PREQUISITE: PDP-11/44.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
SM PAN	N/A	N/A

PDP-11/60 PRODUCT OFFERINGS

All PDP-11/60 processors feature:
- Eight general-purpose registers
- Extended Instruction Set (EIS)
- Power fail/auto-restart
- MOS memory Battery Backup
- 4-level vectored interrupts
- Hardware memory management
- Direct memory access (DMA)
- Self-test diagnostic bootstrap
- Integral microcoded floating point instruction set
- Integral 2048 byte bipolar-cache memory buffer

PDP-11/60s are packaged three ways:
- *Hardware only systems*
  These 11/60s include CPU, ECC MOS memory, battery back-up, bootstrap loader, programmers console and serial line unit and line frequency clock. It is packaged in a BA11-P box.
- *Cabinet mounted hardware only systems*
  These 11/60s include CPU, ECC MOS memory, battery back-up, bootstrap loader, programmers console, serial line unit and line frequency clock. It is packaged in either a double-width low-boy cabinet or double-width high-boy cabinet.
- *Packaged systems*
  These systems include CPU, ECC MOS memory, battery back-up, bootstrap loader, programmers console, serial line unit and line frequency clock. It is packaged in either a double-width low-boy cabinet or double-width high-boy cabinet and include an operating system, disk and choice of console terminal.

Advanced software optionally available includes the RT-11, RSX-11M, RSX-11D, RSTS/E and IAS Operating Systems, FORTRAN IV, FORTRAN IV-PLUS, BASIC, BASIC-PLUS-2, COBOL and APL programming languages; DECnet Communications Network System; plus DIGITAL's RMS Record Management System. Optional hardware is also available such as the FP11-E floating point processor, expansion ECC MOS memory, communications hardware and peripheral devices.

PDP-11/60 MINICOMPUTERS

MODEL	MEMORY	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED
MOS Memory					
11/60-CA *11/60-CB*	64Kb	1 SU 1 Hex slot 1 Quad slot	65	15	NO CAB (BA11-P)
11/60-EA *11/60-EB*	128Kb	1 SU 1 Hex slot 1 Quad slot	65	15	NO CAB (BA11-P)
11X60-CA *11X60-CB*	64Kb	1 SU 1 Hex slot 1 Quad slot	65	15	H9601 (Low-Boy)
11X60-EA *11X60-EB*	128Kb	1 SU 1 Hex slot 1 Quad slot	65	15	H9601 (Low-Boy)
11Y60-CA *11Y60-CB*	64Kb	1 SU 1 Hex slot 1 Quad slot	65	15	H9600 (High-Boy)
11Y60-EA *11Y60-EB*	128Kb	1 SU 1 Hex slot 1 Quad slot	65	15	H9600 (High-Boy)

PDP-11/60 Packaged Systems

Note: After the first fully supported system is purchased, PDP-11/60 packaged systems are also available at unsupported and license only software support levels. Shown here are the 120/60 and 240/50 fully supported systems. The other available power variations appear in the Price List.

RT-11 Operating Systems

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE		POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
MOS Memory								
SR-60LLA-CA	64Kb	RL01	**CPU**		6.5	14	1	LA120
SR-60LLA-CD		RL01	SU 1-3:	1 Hex slot, 1 Quad slot				
			SU 4-5:	(space for 192Kb ECC MOS)	dedicated			BA11-P
			SU 6:	1 Hex slot, 2 Quad slots	11.2			
			BA11-P					
			SU 1-2:	2 SUs	25			
			SU 3-4:	2 SUs	25			
			SU 5-6:	2 SUs	15			

RSX-11M Operating Systems
MOS Memory

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE		POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
SM-60LLA-CA	128Kb	RL01	**CPU**		6.5	14	1	LA120
SM-60LLA-CD		RL01	SU 1-3:	1 Hex slot, 1 Quad slot				
			SU 4-5:	(space for 128Kb ECC MOS)	dedicated			BA11-P
			SU 6:	1 Hex slot, 2 Quad slots	10.7			
			BA11-P					
			SU 1-2:	2 SUs	25			
			SU 3-4:	2 SUs	25			
			SU 5-6:	2 SUs	15			

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE		POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
SM-60HHA-CA	128Kb	RK07	**CPU**		6.5	14	1 (High-Boy)	LA120
SM-60HHA-CD		RK07	SU 1-3:	1 Hex slot, 1 Quad slot				
			SU 4-5:	(space for 128Kb ECC MOS)	dedicated			BA11-P
			SU 6:	1 SU	17			
			BA11-P					
			SU 1-2:	2 Hex slots, 1 Quad slot	11.7			
			SU 3-4:	2 SUs	25			
			SU 5-6:	2 SUs	15			

			CPU					
SM-60HHB-CA	128Kb	RK07	SU 1-3:	1 Hex slot, 1 Quad slot	6.5	14	1 (Low-Boy)	LA120
SM-60HHB-CD		RK07	SU 4-5:	(space for	dedicated			
				128Kb ECC MOS)				BA11-P
			SU 6:	1 SU	17			
			BA11-P					
			SU 1-2:	2 Hex slots, 1 Quad slot	11.7			
			SU 3-4:	2 SUs	25			
			SU 5-6:	2 SUs	15			
			CPU					
SM-60UVB-CA	128Kb	RM02	SU 1-3:	1 Hex slot, 1 Quad slot	6.5	13	3	LA120
SM-60UVB-CD		TE16	SU 4-5:	(space for	dedicated			
				128Kb ECC MOS)				BA11-P
			SU 6:	1 SU	17			
			BA11-P					
			SU 1-2:	none	none			
			SU 3-4:	none	none			
			SU 5-6:	2 SUs	15			
			CPU					
SM-60UAA-CA	256Kb	RM02	SU 1-3:	1 Hex slot, 1 Quad slot	6.5	13	1	LA120
SM-60UAA-CD		TS11	SU 4-5:	none	none			
			SU 6:	1 SU	16			BA11-P
			BA11-P					
			SU 1-2:	none	none			
			SU 3-4:	1 Hex slot, 2 Quad slots	20.7			
			SU 5-6:	1 SU 2 SUs	15			

IAS Operating System
MOS Memory

			CPU					
SA-60UVC-LA	256Kb	RM02	SU 1-3:	1 Hex slot, 1 Quad slot	6.5	13	3	LA36
SA-60UVC-LD		TE16	SU 4-5:	none	none			
			SU 6:	1SU	16			BA11-P
			BA11-P					
			SU 1-2:	none	none			
			SU 3-4:	none	none			
			SU 5-6:	2 SU	15			

PDP-11/60 PROCESSOR OPTIONS

FP11-EA
FP11-EB

High-speed floating point processor for PDP-11/60. 17 digits of precision. 46 instruction set similar to integral floating point instruction set. Performs hardware operations on 32-bit and 64-bit floating point numbers. 3.74 microsecond register-to-register double precision multiply.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Reserved PDP-11/60 slots	Dedicated	N/A	RSX-11M, IAS

KU116-AB

Extended Control Store option. Includes control circuitry and sockets for up to 1.5K x 48-bits of PROM or ROM (PROM and ROM memories are not supplied by DIGITAL).

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Hex slot #1†	Dedicated	N/A	RSX-11M, IAS

KU116-AE

User Control Store option. Includes 1K x 48-bits (plus parity) of RAM (WCS module), software tools (micro-assembler, micro-loader, manual, and micro-debugger for use with RSX-11M), documentation, RK05 media.
PREREQUISITE: Minimum system configuration of 128K bytes of memory.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Hex slot #1†	Dedicated	N/A	RSX-11M, IAS

KU116-AT

User Control Store option. Includes 1K x 48-bits (plus parity) of RAM (WCS module), software tools (micro-assembler, micro-loader, manual, and micro-debugger for use with RSX-11M), documentation, RK06 media.
PREREQUISITE: Minimum system configuration of 128K bytes of memory.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Hex slot #1†	Dedicated	N/A	RSX-11M, IAS

KU116-AV

User Control Store option. Includes 1K x 48-bits (plus parity) of RAM (WCS module), software tools (micro-assembler, micro-loader, manual, and micro-debugger for use with RSX-11M), documentation, RK07 media.
PREREQUISITE: Minimum system configuration of 128K bytes of memory.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Hex slot #1†	Dedicated	N/A	RSX-11M, IAS

KU116-BB

Diagnostic Control Store option (Fault Isolator). Self-contained CPU diagnostics in ROM, and fault directory.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Hex slot #1†	Dedicated	N/A	N/A

† Only one KU116 option can be mounted in Hex slot #1 at any given time.

EXPANSION HARDWARE

M9202   Unibus jumper module (mounts on DD11)

PDP-11/60 MEMORY

MS11-KE
64K bytes ECC MOS memory.
PREREQUISITE: MOS PDP-11/60 system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
Reserved PDP-11/60 slot	Dedicated	N/A

MS11-KF
128K bytes ECC MOS memory (2 MS11-KE).
PREREQUISITE: MOS PDP-11/60 system. ·

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
Reserved PDP-11/60 slot	Dedicated	N/A

MS11-KG
192K bytes ECC MOS memory (3 MS11-KE).
PREREQUISITE: MOS PDP-11/60 system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
Reserved PDP-11/60 slot	Dedicated	N/A

MF11-WP
64K bytes parity core memory with expansion capability up to 128K bytes (by addition of MM11-WP).
PREREQUISITE: Core PDP-11/60 system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
2 SUs	7.3	2

MM11-WP
64K bytes parity core memory. One per MF11-WP.
PREREQUISITE: Core PDP-11/60 system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
MF11-WP (with 64K bytes available)	6.1	1

CABINETS

H9600-AA
H9600-AB
Double width, high-boy expansion cabinet 47"W x 60"H x 30"D (119.4cm x 152.4cm x 76.2cm). Includes three phase power control. Accomodates BA11-P expansion box.
PREREQUISITE: PDP-11 system.

H9601-AA
H9601-AB
Double width, low-boy expansion cabinet 47"W x 50"H x 30"D (119.4cm x 127.0cm x 76.2cm). Includes three phase power control. Accomodates BA11-P expansion box.
PREREQUISITE: PDP-11/60 system.

H9602-BA
H9602-BB
Single width, high-boy expansion cabinet 28"W x 60"H x 30"D (71.1cm x 152.4cm x 76.2cm). Includes single phase power control. Accomodates BA11-P expansion box.
PREREQUISITE: PDP-11/60 system.

H9603-BA
H9603-BB
Single width, low-boy expansion cabinet 28"W x 50"H x 30"D (71.1cm x 127.0cm x 76.2cm). Includes single phase power control.
PREREQUISITE: PDP-11/60 system.

H9603-CA
Single width, low-boy expansion cabinet 28"W x 50"H x 30"D (71.1cm x 127.0cm x 76.2cm). **without power control.**
PREREQUISITE: PDP-11/60 system.

PDP-11/70 PRODUCT OFFERINGS

All PDP-11/70 processors feature:
- Sixteen general-purpose registers
- Extended Instruction Set (EIS)
- Power fail/auto-restart
- Variable stack overflow
- 4-level vectored priority interrupts
- Hardware memory management
- Multifunction ROM Bootstrap loader
- Direct memory access (DMA)
- Terminal controller
- Set of over 400 instructions
- Integral 2048 byte bipolar-cache memory buffer
- Up to 4Mb of memory

PDP-11/70s are packaged two ways:
- *Cabinet mounted hardware only systems*
  These 11/70s include CPU, ECC MOS or parity core memory, serial line unit and line frequency clock and choice of console terminal. It is packaged in two H960 cabinets.
- *Packaged systems*
  These systems include CPU, ECC MOS memory, serial line unit and line frequency clock, operating system, disk, dedicated magtape and console terminal.

Advanced software optionally available includes the RSX-11M, RSX-11M-PLUS, RSTS/E and IAS/RSX-11D operating systems, FORTRAN, FORTRAN IV PLUS, BASIC, COBOL and APL programming languages, DECnet, and DIGITAL's RMS and DBMS Data Management Products System. There is a wide range of compatible options such as the FP11-C floating point processor, expansion ECC MOS memory, and communications hardware.

PDP-11/70 MINICOMPUTERS

MODEL	MEMORY	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED
MOS Memory					
11/70-VK *11/70-VL*	128Kb	3 Hex slots 1 Quad slot	3.2	15	2 H960s
11/70-AA *11/70-AB*	512Kb	3 Hex slots 1 Quad slot	3.2	15	2 H960s
Core Memory					
11/70-VA *11/70-VB*	128Kb	3 Hex slot 1 Quad slot	3.2	15	2 H960s

PDP-11/70 PACKAGED SYSTEMS

Note: After the first fully supported system is purchased, PDP-11/70 packaged systems are also available at unsupported and license only software support levels. Shown here are the 120/60 and 240/50 fully supported systems. The other available power variations appear in the Price List.

IAS Operating Systems

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
MOS Memory							
			CPU				
SA-70TVC-CA	512Kb	RWM03	3 Hex slots,	3.2	11	3	LA120
SA-70TVC-CD		TWE16	1 Quad slot				
			2 MASSBUS PORTS				
			CPU				
SA-70CVC-CA	1024Kb	RWP06	3 Hex slots,	3.2	11	3	LA120
SA-70CVC-CD		TWE16	1 Quad slot				
			2 MASSBUS PORTS				

RSTS/E Operating Systems

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
MOS Memory							
			CPU				
SE-70TVB-CA	512Kb	RWM03	3 Hex slots,	3.2	11	3	LA120
SE-70TVB-CD		TWE16	1 Quad slot				
			2 MASSBUS PORTS				
			CPU				
SE-70CVB-CA	1024Kb	RWP06	3 Hex slots,	3.2	11	3	LA120
SE-70CVB-CD		TWE16	1 Quad slot				
			2 MASSBUS PORTS				

RSX-11M Operating Systems

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
MOS Memory							
SM-70TAA-CA *SM-70TAA-CD*	512Kb	RWM03 TS11	CPU 2 Hex slots, 1 Quad slot 3 MASSBUS PORTS	1.7	10	1 DWHB 1 SWHB	LA120
SM-70TVB-CA *SM-70TVB-CD*	512Kb	RWM03 TWE16	CPU 3 Hex slots, 1 Quad slot 2 MASSBUS PORTS	3.2	11	3 H960s	LA120
SM-70TVC-CA *SM-70TVC-CD*	512Kb	RWM03 TWE16	CPU 3 Hex slots, 1 Quad slot 2 MASSBUS PORTS	3.2	11	1 DWHB 1 SWHB	LA120
SM-70TBA-CA *SM-70TBA-CD*	512Kb	RWM03 TWU77	CPU 3 Hex slots, 1 Quad slot 2 MASSBUS PORTS	3.2	11	1 DWHB 1 SWHB	LA120
SM-70CAA-CA *SM-70CAA-CD*	512Kb	RWP06 TS11	CPU 2 Hex slots, 1 Quad slot 3 MASSBUS PORTS	1.7	10	1 DWHB 1 SWHB	LA120
SM-70CVA-LA *SM-70CVA-LD*	256Kb	RWP06 TWE16	CPU 3 Hex slots, 1 Quad slot 2 MASSBUS PORTS	3.2	11	3 H960s	LA36
SM-70CVB-CA *SM-70CVB-CD*	1024Kb	RWP06 TWE16	CPU 3 Hex slots, 1 Quad slot 2 MASSBUS PORTS	3.2	11	3 H960s	LA120
SM-70CVC-CA *SM-70CVC-CD*	1024Kb	RWP06 TWE16	CPU 3 Hex slots, 1 Quad slot 2 MASSBUS PORTS	3.2	11	1 DWHB 1 SWHB	LA120
SM-70CBA-CA *SM-70CBA-CD*	1024Kb	RWP06 TWU77	CPU 3 Hex slots, 1 Quad slot 2 MASSBUS PORTS	3.2	11	1 DWHB 1 SWHB	LA120

Note: TU77 will ship 208-240v Single Phase 50/60Hz

RSX-11M-PLUS Operating Systems

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
MOS Memory							
SN-70TAA-CA *SN-70TAA-CD*	512Kb	RWM03 TS11	CPU 2 Hex slots, 1 Quad slot 3 MASSBUS PORTS	1.7	10	1 DWHB 1 SWHB	LA120
SN-70TVA-CA *SN-70TVA-CD*	512Kb	RWM03 TWE16	CPU 3 Hex slots, 1 Quad slot 2 MASSBUS PORTS	3.2	11	1 DWHB 1 SWHB	LA120
SN-70TBA-CA *SN-70TBA-CD*	512Kb	RWM03 TWU77	CPU 3 Hex slots, 1 Quad slot 2 MASSBUS PORTS	3.2	11	1 DWHB 1 SWHB	LA120
SN-70CAA-CA *SN-70CAA-CD*	512Kb	RWP06 TS11	CPU 2 Hex slots, 1 Quad slot 3 MASSBUS PORTS	1.7	10	1 DWHB 1 SWHB	LA120
SN-70CVA-CA *SN-70CVA-CD*	1024Kb	RWP06 TWE16	CPU 3 Hex slots, 1 Quad slot 2 MASSBUS PORTS	3.2	11	1 DWHB 1 SWHB	LA120
SN-70CBA-CA *SN-70CBA-CD*	1024Kb	RWP06 TWU77	CPU 3 Hex slots, 1 Quad slot 2 MASSBUS PORTS	3.2	11	1 DWHB 1 SWHB	LA120

Note: TU77 will ship 208-240v Single Phase 50/60Hz

PDP-11/70 PROCESSOR OPTION

FP11-C — High performance floating point processor for PDP-11/70. Performs hardware operations on 32-bit and 64-bit floating point numbers as well as integer to floating point conversions.
PREREQUISITE: PDP-11/70 systems.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Reserved PDP-11/70 slots	Dedicated	N/A	RSX-11M, RSX-11M-PLUS, RSTS/E, IAS

PDP-11/70 MEMORY

Note: MK11-B and MK11-E options utilize 4K ECC MOS RAM memory arrays and MK11-C and MK11-F options utilize 16K ECC MOS RAM memory arrays. MK11-B and MK11-C memory arrays can be mixed in the same memory box.

Expansion ECC MOS memory for ECC MOS systems

MK11-BA
MK11-BB

128K byte ECC MOS memory including box, power supplies, control, and battery back-up. Expandable to a total of 1024K bytes per box by addition of 7 MK11-BEs; or 1 MK11-BF and 3 MK11-BEs. Mounts in memory cab.
PREREQUISTE: PDP-11/70 system.

MK11-BC
MK11-BD

MK11-BA(BB) mounted in a H960 cabinet.
PREREQUISTE: PDP-11/70 system.

MK11-BE

128K byte ECC MOS expansion memory. Mounts in MK11-BA(BB).
PREREQUISITE: PDP-11/70 system with MK11-BA(BB).

MK11-BF

512K byte ECC MOS expansion memory. (4 MK11-BE)
PREREQUISITE: PDP-11/70 system with MK11-BA(BB).

MK11-BG
MK11-BH

1Mb ECC MOS memory including box, power supplies, control, and battery back-up. Mounts in memory cab.
PREREQUISTE: PDP-11/70 system.

MK11-BJ

1Mb ECC MOS expansion memory.
PREREQUISITE: PDP-11/70 system.

MK11-CA
MK11-CB

512K byte ECC MOS memory including box, power supplies, control, and battery backup. Expandable to a total of 3.5 megabytes by addition of 6 MK11-CEs. Mounts in memory cab.
PREREQUISITE: PDP-11/70.

MK11-CC
MK11-CD

MK11-CA (CB) mounted in a H960 cabinet.
PREREQUISTE: PDP-11/70 system.

MK11-CE

512K byte ECC MOS expansion memory. Mounts in MK11-CA(CB).
PREREQUISITE: MK11-CA(CB)

MK11-CF

1024K byte ECC MOS expansion memory (2 MK11-CEs). Mounts in MK11-CA(CB).
PREREQUISITE: MK11-CA(CB)

MK11-CG
MK11-CH

1Mb ECC MOS memory including box, power supplies, control, and battery back-up. Mounts in memory cab.
PREREQUISTE: PDP-11/70 system.

Core to ECC MOS RECONFIGURATION KIT

MK11-UA   This option includes all the necessary hardware for H960 cabinet conversion from Core to ECC MOS. Note that no memory comes with this kit. ECC MOS memory boxes replace Core memory boxes in the cabinet. Either MK11-B or MK11-C memory boxes are required for complete conversion.

Expansion ECC MOS memory for Core systems

Note: MK11-E and MK11-F expansion memory includes the hardware necessary to mix ECC MOS and Core memory boxes in Core cabinets. An MK11-UA *is not required.*

MK11-EA
MK11-EB
128K byte ECC MOS memory unit, includes box, power supplies, and control. Also includes battery back-up in the memory cabinet. Expandable to a total of 1024K bytes per box by addition of 7 MK11-BE; or 1 MK11-BF and 3 MK11-BE. Mounts in memory cab.
PREREQUISTE: Core PDP-11/70 system.

MK11-EC
MK11-ED
MK11-EA(EB) mounted in a H960 cabinet.
PREREQUISTE: Core PDP-11/70 system.

MK11-FA
MK11-FB
512K byte ECC MOS memory including box, power supplies, control, and battery backup. Expandable to a total of 3.5 megabytes by addition of 6 MK11-CEs. Mounts in memory cab.
PREREQUISITE: Core PDP-11/70.

Expansion Core memory for Core systems

MJ11-BA
MJ11-BB
128K byte parity Core memory unit, includes box, power supplies, and control. Expandable to a total of 512K bytes by addition of 3 MJ11-BE. Mounts in memory cab.
PREREQUISITE: PDP-11/70 system.

MJ11-BE   128K byte parity expander Core memory. Mounts in MJ11-BA(BB).
PREREQUISITE: PDP-11/70 system with MJ11-BA(BB).

MJ11-BC
MJ11-BD
512K byte parity Core memory system. Includes cabinet, power supplies, and control. Expansion space in box for a total of 1024K bytes by addition of 1 MJ11-BG (or MJ11-BA and 3 MJ11-BE's).
PREREQUISITE: PDP-11/70 system.

M9301-YC   ROM bootstrap and basic CPU, cache and memory diagnostic tests.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
1 Double slot	2	1

VAX-11/780 PRODUCT OFFERINGS

All VAX-11/780 processors feature:
- Virtual memory management
- Standard instructions for packed decimal
- Floating and fixed point arithmetic
- Character and string manipulations
- 8K byte parity bipolar cache memory
- High precision programmable real-time clock
- Time-of-year clock (with battery backup)
- Integral diagnostic console subsystem consisting of: LSI-11 with 16K bytes read/write memory and 8K bytes read only memory to which an RX01 floppy disk and the hardcopy terminal are connected
- 12Kb Writable Diagnostic Control Store

VAX-11/780s are packaged two ways:
- *Cabinet mounted hardware only system*
    These 11/780s include CPU, ECC MOS memory, UNIBUS adapter and the diagnostic console subsystem. It is packaged in a Double-width high-boy cabinet.
- *Packaged systems*
    These systems include VMS Operating System, CPU, ECC MOS memory, one UNIBUS expansion cab, disk and diagnostic console subsystem.

Optional hardware is available such as the FP780 floating point accelerator, WCS, battery back-up for memory, expansion ECC MOS memory, multiport memory, additional UNIBUS adapters, communications hardware and peripheral devices. Also a full complement of languages and communications software is optionally available.

VAX-11/780 HARDWARE SYSTEM

MODEL	MOS MEMORY	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	UNIBUS LOADS AVAILABLE	CABINETS INCLUDED	CONSOLE TERMINAL
11/780-CP *11/780-CT*	256Kb	**CPU** Reserved space for: FP780-AA(AB) KU780 3,840K bytes memory 2 MBAs or 2 UBAs, or 1 of each H7112-A(B)	N/A	19	H9600 (High-Boy)	LA120

VAX-11/780 PACKAGED SYSTEMS

Note: The following packaged systems include DIGITAL installation and support for VMS operating system. Customer's with a DIGITAL supported VMS system may purchase additional VMS systems without DIGITAL installation and support. Unsupported systems appear in the price list.

MODEL	MEMORY	SYSTEM BACKUP & LOAD DEVICES	EXPANSION SPACE	POWER AVAILABLE Amps@+5V	BUS LOADS AVAILABLE	CABINETS INCLUDED	OTHER OPTIONS INCLUDED
MOS Memory							
SV-AXHHB-CA	512KB	RK07	**CPU**		17	2	LA120
SV-AXHHB-CD		RK07	Reserved space for:	N/A			
			FP780-AA(AB)				DZ11-A
			KU780				
			3,584K bytes memory				DD11-DK
			2 MBAs or 2 UBAs,				
			or 1 of each				BA11-K
			H7112-A(B)				
			BA11-K				
			SU 1-2:2 Hex slots, 1 Quad slot	13			
			SU 3-5:6 Hex slots, 2 Quad slots	21.5			
			1 SU				
SV-AXTVB-CA	512KB	RM03	**CPU**		18	3	LA120
SV-AXTVB-CD		TE16	Reserved space for:	N/A			
			FP780-AA(AB)				DZ11-A
SV-AXTBA-CA		RM03	KU780				
SV-AXTBA-CD		TU77	3,584K bytes memory,				DD11-DK
			H7112-A(B)				
							BA11-K
			BA11-K				
			SU 1-2:6 Hex slots, 2 Quad slot	21.5			
			SU 3-5:3 SUs	25.0			
SV-AXCVB-CA	1 MB	RP06	**CPU:**		18	3	LA120
SV-AXCVB-CD		TE16	Reserved space for:	N/A			
			FP780-AA(AB)				DZ11-A
SV-AXCBA-CA		RP06	KU780				
SV-AXCBA-CD		TU77	3,072K bytes memory				DD11-DK
			H7112-A(B)				
							BA11-K
			BA11-K:				
			SU 1-2: 6 Hex slots	21.5			
			2 Quad slots				
			SU 3-5:3 SUs	25.0			

Note: TU77 will ship 208-240v Single Phase 50/60Hz

VAX-11/780 PROCESSOR OPTIONS

FP780-AA
FP780-AB
High-performance floating-point accelerator for single- and double-precision floating-point in-structions plus POLY, EMOD and MULL. Power supply included.
PREREQUISITE: VAX-11/780 system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Prewired CPU slots	N/A	N/A	VAX/VMS

KU780-YY
12K byte writable control store. Includes MICRO-2 assembler, loader, define file, data path de-scription, and microcode source listing on microfiche.
PREREQUISITE: VAX-11/780 system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Prewired CPU slots	N/A	N/A	None

DW780-AA
DW780-AB
UNIBUS Adapter for connecting additional UNIBUSes to the VAX-11/780 backplane (SBI). A maxi-mum of four UNIBUSes may be configured in a system. The DW780 requires one Option Panel Space within the CPU or CPU expansion cabinet (H9602-HA/*HB*). UNIBUS options are cofigured in BA11-K boxes within UNIBUS expansion cabinets (H9602-DF(DH)), which are not included with the DW780.
PREREQUISITE: VAX-11/780 system.

Mounting Code	Power Available Amps@+5V	Bus Loads Available
H9602-HA(HB)	N/A	19

DR780-AA
DR780-AB
High performance 32-bit parallel general purpose interface for the VAX-11/780. The DR780 re-quires one Option Panel Space within the CPU or CPU expansion cabinet (H9602-HA/*HB*).
PREREQUISITE: VAX-11/780 system.

Mounting Code	Power Available Amps@+5V	Bus Loads Available
H9602-HA(HB)	N/A	19

EXPANSION MEMORY FOR VAX-11/780 SYSTEMS

MS780-CC
MS780-CD
512K byte ECC MOS, 16K chip memory with controller. Expandable to a total of four million bytes with the addition of MS780-Ds. This option can be ordered for expansion beyond four million bytes of CPU cabinet-mounted memory to a VAX-11/780 system total of eight million bytes. Two MS780 memory controllers, with equal amounts of memory can be interleaved to improve I/O throughput. One MS780-CC(CD) is included with each VAX-11/780 packaged system to accommodate the first four million bytes of memory. The second MS780-C requires two Option Panel Spaces in the CPU Expansion Cabinet (H9602-HA(HB)).

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
H9602-HA/*HB*	N/A	2

NOTE: MS780-D memory expansion units cannot be mixed with MS780-B units on the same controller.

MS780-DA   256K byte ECC MOS expansion memory for MS780-CC(CD).

MS780-DB   512K byte ECC MOS expansion memory for MS780-CC(CD).

MS780-DC   1,024K byte ECC MOS expansion memory for MS780-CC(CD).

MS780-DD   2,048K byte ECC MOS expansion memory for MS780-CC(CD).

H7112-A   MOS memory battery backup. Powers up to four million bytes of MS780-D memory for at least 10
H7112-B   minutes, or less memory for longer than 10 minutes.

NOTE: MS780-AA(AB) memory and controller has been replaced by MS780-CC(CD).

VAX-11/780 MULTIPORT MEMORY OPTIONS

The MA780 Multiport Memory is a bank of ECC MOS memory which can be shared by up to four VAX-11/780 systems for high-throughput and high-availability in real-time applications. Each system can randomly access all shared memory in exactly the same way that a single CPU system accesses its local memory. Any information stored in the Multiport Memory is also immediately accessible to the other VAX-11/780 systems.
Each MA780 can be expanded from a minimum of 256K bytes to a maximum of 2 megabytes of shared memory. This is in addition to the 8 megabyte maximum of local memory for each VAX-11/780 system. There can be two MA780s connected to each CPU. Therefore, a single VAX-11/780 can directly address up to 12 megabytes of physical memory.

MA780-AA   256K byte multiport ECC MOS memory subsystem. Includes controller, two port interfaces, cabi-
MA780-AB   net, power supply, expansion space for up to 2 megabytes ECC MOS memory, and an MA780-
                  BA(BB) subsystem.

MA780-BA   Additional MA780 Multiport Memory subsystem. Includes controller, 256K bytes ECC MOS memo-
MA780-BB   ry, two port interfaces, power supply and expansion space for up to 2 megabytes ECC MOS
                  memory.
                  PREREQUISITE:MA780-AA(AB)

MA780-C   MA780 Multiport memory port interface. One required for third or fourth VAX-11/780 CPU con-
                  nected to either MA780-A or MA780-B.
                  PREREQUISITE: MA780-AA(AB) or MA780-BA(BB)

NOTE: The MS780-AA or MS780-BA can be expanded up to 2 MBytes of memory by the addition
of MS780-D array modules.

VAX-11/780 CPU EXPANSION CABINET

H9602-HA   Single-width, high-boy expansion cabinet. 60"(H) x 28"(W) x 30"(D) (152.4cm x 71.2cm x 76.2cm).
H9602-HB   Provides four Option Panel Spaces for additional memory, UBAs, and MBAs. The MS780 memory
                  controller requires two Option Panel Spaces. Each MBA or UBA requires one Option Panel Space.
                  The CPU Expansion Cabinet also includes space for one H7112-A(B) memory battery backup
                  option. A maximum of two H9602-HA(HB) CPU expansion cabinets on a system.

VAX-11/780 UNIBUS EXPANSION CABINET

H9602-DF   Single-width high-boy UNIBUS expansion cabinet with single phase power control. 60" H x 28" W x
H9602-DH   30" D (152.4cm H x 71.2cm W x 76.2cm D). Provides space for two BA11-K boxes and three DZ11
                  distribution panels.

INTRODUCTION TO OEM COMMON HARDWARE

The following section is a summary of processor options, mass storage devices and other peripherals available from DIGITAL which are fully supported by each PDP-11 system and VAX systems as indicated.

Each option described in the summary contains the following information:

Option Number

The first entry is the order number for the option, with 120 Vac, 60 cycle power. If a different option number is used for 240 Vac, 50 cycle power, it is shown immediately below in *italics*.

The basic features and specifications of each option are included in the description. More complete hardware and software descriptions can be found in option bulletins, handbooks, and Software Product Descriptions.

Mounting Code

The mounting code indicates how the option mounts into the system.

CAB	Cabinet mounted.
FS	Free standing unit.
TT	Table top unit.

PDP-11/03 PAN	Panel mounted. Front panel height is 3½ inches (8.89cm).
PAN	Panel mounted. Front panel height is 10½ inches (26.7cm).
SM PAN	Small panel. Front panel height is 5¼ inches (13.3cm).

LSI-11 Double slot	Space in pre-wired backplane which will accept a 5.2185 inch (13.255cm) high module for PDP-11/03 systems.
LSI-11 Quad slot	Space in a pre-wired backplane which will accept a 10.437 inch (26.510cm) high module for PDP-11/03 systems.
DBL Slot	Space in a pre-wired backplane which will accept a 5.2185 inch (13.255cm) high module.
Quad slot	Space in pre-wired backplane which will accept a 10.437 inch (26.510cm) high module for UNIBUS system.
Hex slot	Space in pre-wired backplane which will accept a 15.604 inch (39.634cm) high module for UNIBUS system.
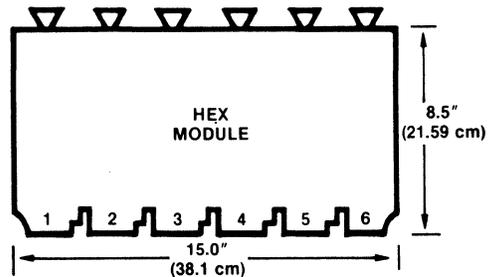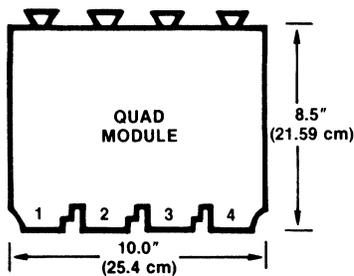
SU   System Unit. Unit of space in chassis for mounting pre-wired backplane(s) which can accept Hex- or Quad-sized modules.

BACKPLANE: DD11-C

			QUAD		
1	///	///	QUAD		
2			HEX		
3			HEX		
4	///	///	QUAD		

BACKPLANE: DD11-D

1	///	///	QUAD		
2			HEX		
3			HEX		
4			HEX		
5			HEX		
6			HEX		
7			HEX		
8			HEX		
9	///	///	QUAD		

MASSBUS Port   Unit of expansion space in PDP-11/70 processor box reserved for connection of high-speed peripheral options.

MBA   MASSBUS adapter

UBA   UNIBUS adapter

Power Drawn Amps
Current drawn from system @+5V or @+5V, @+15V, @-15V.

Power Available Amps @+5V
Current available for system expansion @+5V.

Bus Loads Drawn
The number of loads the option puts on the UNIBUS. There can be a total of 20 bus loads or 50 feet (15.2cm) of UNIBUS cable before a Bus Repeater, DB11, is needed.

System Software
This column refers to the operating system which supports the subsystem as both the system device and/or file oriented device.

EXPANSION MOUNTING HARDWARE

SYSTEM UNIT EXPANSION BACKPLANES

DD11-CK   Expansion backplane mounting unit for BA11-K or BA11-L. Accommodates 2 Hex and 2 Quad modules. Mounts in 1 SU.
PREREQUISITE: UNIBUS PDP-11 or VAX systems.

DD11-CF   Expansion backplane mounting unit for BA11-P, BA11-F, H960-DH. Accommodates 2 Hex and 2 Quad modules. Mounts in 1 SU.
PREREQUISITE: UNIBUS PDP-11 system.

DD11-DK   Expansion backplane mounting unit for BA11-K, BA11-L. Accommodates 7 Hex and 2 Quad modules. Mounts in 2 SUs.
PREREQUISITE: UNIBUS PDP-11 or VAX systems.

DD11-DF   Expansion backplane mounting unit for BA11-P, BA11-F, H960-DH. Accommodates 7 Hex and 2 Quad modules. Mounts in 2 SUs.
PREREQUISITE: UNIBUS PDP-11 system.

EXPANSION BOXES

BA11-KE
BA11-KF

Rack mountable expansion box. 10.50″ H x 19″ W x 25″ D, (26.67cm H x 48.33cm W x 63.5cm D) Provides mounting space for 5 system units. (Compatible with DD11-CK/DK.) Power supply is also provided.
PREREQUISITE: PDP-11 system (except PDP-11/60, PDP-11/03 and PDP-11/23 systems).

Mounting Code	Power Available Amps			Bus Loads Drawn
	@+5V	@+15V	@-15V	
PAN	50.0	4.0	10.0	N/A

BA11-KW
BA11-KX

Rack mountable expansion box with bezel for use with H9642 or H9602. 10.50″ H x 19″ W x 25″ D, (26.67cm H x 48.33cm W x 63.5cm D) Provides mounting space for 5 system units. (Compatible with DD11-CK/DK.) Power supply is also provided.
PREREQUISITE: PDP-11 system mounted in H9642 or H9602.

Mounting Code	Power Available Amps			Bus Loads Drawn
	@+5V	@+15V	@-15V	
PAN	50.0	4.0	10.0	N/A

BA11-LE
BA11-LF

Rack mountable expansion box. 5.25″ H x 19″ W x 25″ D, (13.33cm H x 48.33cm W x 63.5cm D) Provides mounting space for 2 system units. (Compatible with DD11-CK/DK.) Power supply is also provided.
PREREQUISITE: PDP-11 system (except PDP-11/60, PDP-11/03 and PDP-11/23 systems).

Mounting Code	Power Available Amps@+5V	Bus Loads Drawn
SM PAN	32.0	N/A

BA11-PE
BA11-PF

Rack mountable expansion box. 24.5″ H x 15.75″ W x12″ D, (62.23cm H x 40cm W x 30.78cm D) Provides mounting space for 6 system units. (Compatible with DD11-CF/DF.) Power supply is also provided.
PREREQUISITE: PDP-11/60 system.

Mounting Code	Power Available Amps@+5V	Bus Loads Drawn
PDP-11/60 CAB	65.0	N/A

BA11-FE
BA11-FF

Rack mountable expansion box. 21″ H x 19″ W x 25″ D, (52.5cm H x 48.33cm W x 63.50cm D) Provides mounting space for 9 system units. (Compatible with DD11-CF/DF.) Power supply is also provided.
PREREQUISITE: PDP-11/60 system.

Mounting Code	Power Available Amps@+5V	Bus Loads Drawn
PDP-11/60 CAB	65.0	N/A

UNIBUS REPEATER

DB11-A

UNIBUS repeater. Allows an additional 19 unit loads and an additional 50 ft. (15.2m) of UNIBUS cable to be added.
PREREQUISITE: UNIBUS PDP-11 or VAX systems.

Mounting Code	Power Available Amps@+5V	Bus Loads Drawn
SU	2.2	2

CABLES

BC11A-XX

The following lengths of cable are available for UNIBUS extension hardware: 2 ft. (0.6m), 5 ft.(1.5m), 8½ ft. (2.6m), 10ft.(3m), 15 ft. (4.5m), 25 ft. (7.6m).
PREREQUISITE: UNIBUS PDP-11 or VAX systems.

CORPORATE CABINETS

H9602-CC
H9602-CD

Single width, high-boy expansion cabinet 28"W x 60"H x 30"D (71.1cm x 152.4cm x 76.2cm). Includes power control, stabilizers, slide mounts and casters.
PREREQUISITE: PDP-11 system.

H9600-AA
H9600-AB

Double width, high-boy expansion cabinet 47"W x 60"H x 30"D (119.4cm x 152.4cm x 76.2cm). Includes three phase power control. Accomodates BA11-P expansion box.
PREREQUISITE: PDP-11 system.

STANDARD PDP-11 CABINETS

H960-CA
H960-CB

Standard PDP-11 CPU cabinet 72"H x 21"W x 31"D (182.8cm x 53.3cm x 76.2cm). Includes fans, power distribution panel, extension feet, front bezel panels, and end panels.

H960-CF	Standard PDP-11 expansion cabinet *without* end panels 72"H x 21"W x 31"D (182.8cm x 53.3cm x
H960-CG	76.2cm). Includes fans, power distribution panel, extension feet, and front bezel panels. **PREREQUISITE:** H960 based system.

H960-DH	Cabinet with a single sliding expansion mounting chassis 72"H x 21"W x 31"D (182.8cm x 53.3cm x
H960-DJ	76.2cm). Provides BA11-F box with 9 system units of mounting space. Includes fans, power distribution panel, extension feet, and front bezel panels. Also a power supply which provides 3 (+5V) regulators (75 Amps). **PREREQUISITE:** H960 based system.

H952-AA	End panel for H960-CA, CB cabinet.
H952-AB	

H961-A	Free-standing equipment mounting cabinet 72"H x 21"W x 30"D (182.8cm x 53.3cm x 76.2cm). Includes fans and front bezel panels.

H9640 SERIES CABINETS

H9642-BD	40" (101.6cm) top loading expansion cabinet for RL01/RL02. Provides 24.5" vertical mounting
H9642-BE	space beneath RL01/RL02. Includes power control.

H9642-DB	40" (101.6cm) expansion cabinet *without end panels*. Mounts next to PDP-11/44 CPU cabinet.
H9642-DC	Provides 35" vertical mounting space. Includes 872 power control. Accepts BA11-KW(KX) box.

READ ONLY MEMORY BOOTSTRAP LOADER

MR11-EA	Bootstrap/Diagnostic/Terminator option. The MR11-EA module contains a complete set of UNI-
	BUS termination resistors along with 512K words of read-only-memory for diagnostic routines, the console emulator routine, and for bootstrap programs. Five sockets on the MR11-EA allow interchange of ROMs, enabling use of the module with any UNIBUS PDP-11, and booting from any peripheral device by adding or changing ROMs. Includes separate package of 23 ROM chips.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
DBL	2.0	1

MASS STORAGE

NOTE: Average Access Time is defined as the sum of the average seek time plus the average latency.

LSI-11 FLOPPY DISK SUBSYSTEMS

RXV11-BA
RXV11-BD
Single density, dual drive, 512K bytes floppy disk drive (RX01) and controller. 263 milliseconds average access time. 18 microsecond/byte transfer rate.
PREREQUISITE: PDP-11/03 or PDP-11/23 systems.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
PAN LSI-11 Double slot	1.5 (interface)	1	RT-11

RXV21-BA
RXV21-BD
Double density, dual drive, 1 Mb floppy disk drive (RX02) and controller. 61K bytes per second peak transfer rate (includes 2 sector interleaving), 263 millisecond average access time.
PREREQUISITE: PDP-11/03L, PDP-11/03 or PDP-11/23 systems with a BDV11-AA bootstrap loader.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
PAN LSI-11 Double slot	2.2	1	RT-11, RSX-11M

LSI-11 CARTRIDGE DISK SUBSYSTEMS

RLV11-AK
5.0 Mb, RL01 cartridge disk drive and controller.
PREREQUISITE: PDP-11/03L or PDP-11/23 systems.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
PAN 2 LSI-11 Quad slots	6.5	1	RT-11, RSX-11M

RLV21-AK
10.4 Mb RL02 removable cartridge disk drive and controller.
PREREQUISITE: PDP-11/03L, PDP-11/23.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
2 LSI-11 Quad slots	6.5	1	RT-11, RSX-11M

UNIBUS FLOPPY DISK SUBSYSTEMS

RX11-BA
RX11-BD
Single density, dual drive, 512K bytes floppy disk drive (RX01) and controller. 31K bytes per second peak transfer rate (including 2 sector interleaving), 263 millisecond average access time.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Quad slot PAN	1.5	1	RT-11, RSX-11M

RX211-BA
RX211-BD
Double density, dual drive, 1 Mb floppy disk drive (RX02) and controller. 31K bytes per second peak transfer rate (including 2 sector interleaving), 263 millisecond average access time.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Quad slot PAN	1.5	1	RT-11, RSX-11M, RSTS/E

UNIBUS CARTRIDGE DISK SUBSYSTEMS

RL11-AK 5.0 megabyte removable cartridge disk drive and controller. Expandable to a total of four single access RL01 drives. (A maximum of two RL11-AK controllers per system.)

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
PAN				1	RT-11, RSX-11M,
1 Hex slot	5.0	0.5	0.5		RSTS/E, IAS

RL211-AK 10.4 megabyte removable cartridge disk drive and controller. Expandable to a total of four single-access RL02 drives. **NOTE:** There is a maximum of two RL211 controllers per system.
PREREQUISITE: UNIBUS PDP-11.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
1 Hex slot				1	RSX-11M, RSX-11M-PLUS,
PAN	5.0	0.5	0.5		RSTS/E

RK711-EA
RK711-ED 28.0 megabyte disk drive and controller. Expandable to a total of eight single access RK07 drives. One disk cartridge included. 538K bytes per second peak transfer rate, 49.0 milliseconds average access time. NOTE: The RK711 controller requires 2 SUs of mounting space and provides 2 Hex slots and 1 Quad slot of additional UNIBUS expansion space.
PREREQUISITE: VAX and PDP-11 systems except PDP-11/03 and PDP-11/23.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
2 SUs				1	RSX-11M, RSTS/E,
FS Drive	12.0	0.18.	0.4		IAS, VAX/VMS

RK711-PA
RK711-PD 28.0 megabyte disk drive and controller. Expandable to a total of eight single access RK07 drives. One disk cartridge included. 538K bytes per second peak transfer rate, 49.0 milliseconds average access time. Mounted in one H9642 cabinet. **NOTE:** The RK711 controller requires 2 SUs of mounting space and provides 2 hex slots and 1 quad slot of additional UNIBUS expansion space.
PREREQUISITE: PDP-11/44.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
2 SUs				1	RSX-11M, RSTS/E,
FS Drive	12.0	0.18	0.4		IAS

RK711-FA
RK711-FD Dual-access 28 megabyte disk drive and two controllers. Expandable to a total of eight dual access RK07 drives. One RK07-DC DECpack is included. Average access time of 49 milliseconds, peak transfer rate of 538K bytes per second.
Note: Each RK711 controller requires 2 SU's of mounting space in a BA11-K and has 2 Hex slots and 1 Quad slot of additional UNIBUS expansion space. Power and Bus load figures are given per controller.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
2 SUs					RSX-11M, RSTS/E,
per				1	IAS
controller	12.0	0.18	0.4		
FS drive					

RK711-C Dual-access kit containing drive logic and hardware, one controller and cables to convert an RK711-E to an RK711-F.
PREREQUISITE: RK711-E

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
2 SUs for				1 for	RSX-11M, RSTS/E,
controller	12.0	0.18	0.4	controller	IAS

ADD-ON CARTRIDGE DISK DRIVES

RL01-AK

5.0 megabyte removable cartridge disk drive. 512K bytes per second peak transfer rate, 67.5 milliseconds average access time. Includes disk cartridge.
PREREQUISITE: RL11-AK, RLV11-AK, RL211-AK, RLV21-AK

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
PAN	N/A	N/A

RL02-AK

10.4 megabyte removable cartridge disk drive. 512K bytes per second peak transfer rate, 67.5 milliseconds average access time. Includes disk cartridge.
PREREQUISITE: RL211-AK, RLV21-AK, RL11-AK, RLV11-AK.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
PAN	N/A	N/A

RK07-EA
RK07-ED

28.0 megabyte cartridge disk drive and disk cartridge. 538K bytes per second peak transfer rate, 49.0 milliseconds average access time.
PREREQUISITE: RK711-E subsystem.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
FS Drive	N/A	N/A

RK07-PA
RK07-PD

28.0 megabyte cartridge disk drive and disk cartridge. 538K bytes per second transfer rate, 49.0 milliseconds average access time. Includes disk cartridge. Mounted in one H9642 cabinet.
PREREQUISITE: RK711-PA(PD).

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
FS Drive	N/A	N/A

RK07-FA
RK07-FD

Dual-access 28 megabyte disk drive. One RK07K-DC data cartridge is included. Average access time of 49.0 millisecond, peak transfer rate of 538K bytes per second.
PREREQUISITE: RK711-F subsystem on VAX-11/780 system

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
FS	N/A	N/A

RK07-C

Dual-access kit containing drive logic, hardware and cables to convert an RK07-E to an RK07-F.
PREREQUISITE: RK07-E

CARTRIDGE DISK ACCESSORIES

RL01K-DC

5.0 megabyte disk cartridge for the RL01.

RL02K-DC

10.4 megabyte disk cartridge for the RL02.

RK07K-AC

28.0 megabyte alignment disk cartridge for RK07.

RK07K-EF

Error free 28.0 megabyte disk cartridge for RK07.

RK07K-DC

28.0 megabyte disk cartridge for RK07.

UNIBUS DISK PACK DRIVE SUBSYSTEMS

RJM02-AA
RJM02-AD

67.0 megabyte disk pack drive and controller. Expandable to a total of eight single access RM02 disk drives. One disk pack included. 806K bytes per second peak transfer rate, 42.5 milliseconds average access time.
PREREQUISITE: PDP-1134A or PDP-11/60.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
2 SUs FS Drive	12.0	0.0	0.4	1	RSX-11M, RSTS/E, IAS

RJP06-AA
RJP06-AB

176 megabyte disk drive and controller. Expandable to 8 RP drives (RP06). One RP06-P disk pack included. 806K bytes per second peak transfer rate, 38.3 millisecond average access time.
PREREQUISITE: PDP-1134A or PDP-11/60

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
2 SUs FS Drive	12.0	0.0	0.4	1	RSX-11M, RSTS/E, IAS

RJP06-BA
RJP06-BB

Dual access 176 megabyte disk drive and two controllers. Expandable to 8 RP drives (RP06). One RP06-P disk pack included. 806K bytes per second peak transfer rate, 38.3 millisecond average access time.
PREREQUISITE: PDP-1134A or PDP-11/60

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
2 SUs FS Drive	12.0	1	RSX-11M, RSTS/E, IAS

PDP-11/70 DISK PACK DRIVE SUBSYSTEMS

RWM03-AA
RWM03-AD

Single access 67.0 megabyte disk pack drive and controller. Expandable to a total of 8 RM03 drives. One RM03-P disk pack is included. 1.2 megabytes per second peak transfer rate, 38.3 millisecond average access time.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
MASSBUS PORT and FS Drive	Dedicated	1	RSX-11M, RSTS/E, IAS

RWM03-BA
RWM03-BD

Dual access 67.0 megabyte disk pack drive and two controllers. Expandable to a total of 8 RM03 drives. One RM03-P disk pack is included. 1.2 megabyte per second peak transfer rate, 38.3 millisecond average access time.
PREREQUISITE: PDP-11/70 system

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
MASSBUS PORT per 11/70 and FS Drive	Dedicated	1 per controller	RSX-11M, RSTS/E, IAS

RWM03-C   RM03 dual access kit containing drive logic, cables and second controller to convert RWM03-A to RWM03-B.
PREREQUISITE: PDP-11/70 system with RWM03-A subsystem.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
MASSBUS PORT	Dedicated	1

RWP06-AA
RWP06-AB

Single access 176.0 megabyte disk drive and controller. Expandable to 8 RP drives. (RP06). One RP06-P disk pack included. 806K bytes per second peak transfer rate, 38.3 millisecond average access time.
PREREQUISITE: PDP-11/70

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
MASSBUS PORT and FS Drive	Dedicated	1	RSX-11M, RSTS/E, IAS

RWP06-BA
RWP06-BB

Dual access 176 megabyte disk drive and 2 PDP-11/70 controllers. Expandable to 8 RP drives (RP06). One RP06-P disk pack included. 806K bytes per second peak transfer rate, 38.3 millisecond average access time.
PREREQUISITE: Two PDP-11/70 systems.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
MASSBUS PORT and FS Drive	Dedicated	1 per controller	RSX-11M, RSTS/E, IAS

RWP06-C   Dual access kit containing drive logic, cables and second controller to convert RWP06-A to RWP06-B.
PREREQUISITE: Two PDP-11/70 systems with RWP06-A subsystem.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
MASSBUS PORT	Dedicated	1

VAX-11/780 DISK PACK DRIVE SUBSYSTEMS

REM03-AA
REM03-AD

Single-access 67-megabyte removable disk pack drive and VAX-11/780 MASSBUS adapter. Expandable to a total of 8 single-access RM03 drives. One RM03-P disk pack is included. 1.2 megabytes/second peak transfer rate, 38.3 msec average access time. (Note: Requires 2 Massbuss Ports in CPU cab or H9602-HA(HB).)
PREREQUISITE: VAX-11/780 system.

REM03-BA
REM03-BD

Dual-access 67-megabyte removable disk pack drive and two VAX-11/780 MASSBUS adapters. Expandable to a total of 8 dual-access RM03 drives. One RM03-P disk pack is included. 1.2 megabytes/second peak transfer rate, 38.3 msec average access time. (Note: Requires 2 Massbuss Ports in CPU cab or H9602-HA(HB).)
PREREQUISITE: VAX-11/780 system.

REM03-DA
REM03-DB

RM03 dual access conversion kit. Contains RM03-C, VAX-11/780 MASSBUS adapter and power supply to convert REM03-A to REM03-B .
PREREQUISITE: REM03-A.

REP06-AA
REP06-AB

Single-access 176-megabyte removable disk pack drive and VAX-11/780 MASSBUS adapter. Expandable to a total of 8 single-access RP drives (RP06). One RP06-P disk pack is included. 806K bytes/second peak transfer rate, 38.3 msec average access time. (Note: Requires 2 Massbuss Ports in CPU cab or H9602-HA(HB).)

| REP06-BA | Dual-access 176-megabyte removable disk pack drive and two VAX-11/780 MASSBUS adapters. |
| *REP06-BB* | Expandable to a total of 8 dual-access RP drives (RP06). One RP06-P disk pack is included. 806K bytes/second peak transfer rate, 38.3 msec average access time. (Note: Requires 2 Massbuss Ports in CPU cab or H9602-HA(HB).) |

| REP06-DA | RP06 dual-access conversion kit. Contains RP06-C, VAX-11/780 MASSBUS adapter and power |
| *REP06-DB* | supply to convert REP06-A to REP06-B.
PREREQUISITE: REP06-A |

ADD-ON DISK PACK DRIVES

| RM02-AA | Single-access 67.0 megabyte top loading free standing disk pack drive. 806K bytes per second |
| *RM02-AD* | peak transfer rate, 42.5 milliseconds average access time.
PREREQUISITE: RJM02-A disk subsystem. |

| RM03-AA | Single-access 67.0 megabyte top loading free standing disk pack drive. 1.2 megabytes per second |
| *RM03-AD* | peak transfer rate, 38.3 millisecond average access time.
PREREQUISITE: RWM03-A disk subsystem. |

| RM03-BA | Dual-access 67.0 megabyte top loading free standing disk pack drive. 1.2 megabytes per second |
| *RM03-BD* | peak transfer rate, 38.3 millisecond average access time.
PREREQUISITE: RWM03-B disk subsystem. |

| RP06-AA | Single-access 176 megabyte free standing disk pack drive. 806K bytes per second peak transfer |
| *RP06-AB* | rate, 38.3 millisecond average access time.
PREREQUISITE: RJP06-A or RWP06-A disk subsystem. |

| RP06-BA | Dual-access 176 megabyte free standing disk pack drive. 806K bytes/second peak transfer rate, |
| *RP06-BB* | 38.3 millisecond average access time.
PREREQUISITE: RJP06-B or RWP06-B disk subsystem. |

DISK DRIVE ACCESSORIES

| RP06-C | RP06 dual access kit containing drive logic, hardware and cables to convert RP06-A to RP06-B. |

| RP06-P | 176 megabyte disk pack for RP06. |

| RM03-C | RM03 dual access kit containing drive logic and cables to convert RM03-A to RM03-B. |

| RM03-P | 67.0 megabyte disk pack for RM02 or RM03. |

MAGNETIC TAPE SUBSYSTEMS MOUNTED IN H9602 CABINETS

TS11-BA
TS11-BB

9-track, 45 inches per second, 1600 bits per inch, industry compatible magnetic tape transport and controller. Expandable to a total of 4 TS11 subsystems per CPU. Microprocessor controlled drive and formatter. Includes H9602, a single width high-boy cabinet.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
1 Hex slot Dedicated CAB	1.5	1	RSX-11M, RSX-11M-PLUS RSTS/E

TJE16-AA
TJE16-AD

9-track, 45 inches per second, 800 or 1600 bits per inch, TE16 magnetic tape transport and controller. Expandable to a total of 8 TE16 transports. Includes H9602, a single width high-boy cabinet.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
2 SUs for controller Dedicated CAB	12.0	0.0	0.4	1	RSX-11M, RSX-11M-PLUS, RSTS/E, IAS

TWE16-AA
TWE16-AB

9-track, 45 inches per second, 800 or 1600 bits per inch, TE16 magnetic tape transport and controller. Expandable to a total of 8 TE16 transports. Includes H9602, a single width high-boy cabinet.
PREREQUISITE: PDP-11/70 system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
MASSBUS PORT Dedicated CAB	Dedicated	1	RSX-11M, RSX-11M-PLUS, RSTS/E, IAS

TJU77-AB
TJU77-AD

9-track, 125 inches per second, 800 or 1600 bits per inch, TU77 magnetic tape transport and controller. Expandable to a total of 4 TU77 transports. Includes H9602, a single width high-boy cabinet.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
2 SUs Dedicated CAB	12.0	0.0	0.4	1	RSX-11M, RSX-11M-PLUS, RSTS/E, IAS

TWU77-AB
TWU77-AD

9-track, 125 inches per second, 800 or 1600 bits per inch, TU77 magnetic tape transport and controller unit. Expandable to a total of 4 TU77 transports. Includes H9602, a single width high-boy cabinet.
PREREQUISITE: PDP-11/70 system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
MASSBUS PORT Dedicated CAB	Dedicated	1	RSX-11M, RSX-11M-PLUS

TME11-AA
TME11-AD

Free-standing, nine-track magnetic tape transport with control unit, capable of handling up to eight TE10W tape transports. 17M character/reel, 45 inches per seconds R/W speed. 800 bits per inches tape density. Includes H9602, a single width high-boy cabinet.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
1 SU Dedicated CAB	5.0	1	RSX-11M, RSTS/E, IAS

MAGNETIC TAPE SUBSYSTEMS MOUNTED IN H960 CABINETS

TME11-EA
TME11-ED

9-track, 45 inches per second, 800 bits per inch, TE10W magnetic tape transport and controller. Expandable to a total of 8 TE10W transports. Includes H960 cabinet.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
1 SU Dedicated CAB	5.0	1	RSX-11M, RSTS/E, IAS

TS11-DA
TS11-DB

9-track, 45 inches per second, 1600 bits per inch, industry compatible magnetic tape transport and controller. Expandable to a total of 4 TS11 subsystems per CPU. Microprocessor controlled drive and formatter. Includes H960 cabinet.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
1 Hex slot Dedicated CAB	1.5	1	RSX-11M, RSX-11M-PLUS, RSTS/E

TJE16-EA
TJE16-ED

9-track, 45 inches per second, 800 or 1600 bits per inch, TE16 program selectable magnetic tape transport and controller. Expandable to a total of 8 TE16 transports. Includes H960 cabinet.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
2 SUs Dedicated CAB	12.0	0.0	0.4	1	RSX-11M, RSX-11M-PLUS, RSTS/E, IAS

TWE16-EA
TWE16-ED

9-track, 45 inches per second, 800 or 1600 bits per inch, TE16 program selectable magnetic tape transport and controller. Expandable to a total of 8 TE16 transports. Includes H960 cabinet.
PREREQUISITE: PDP-11/70 system.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
MASSBUS PORT Dedicated CAB	Dedicated	1	RSX-11M, RSX-11M-PLUS, RSTS/E, IAS

MAGNETIC TAPE SUBSYSTEM MOUNTED IN H9646 CABINET

TS11-CA
TS11-CB

9-track, 45 inches per second, 1600 bits per inch, industry compatible magnetic tape transport and controller. Expandable to a total of 4 TS11 subsystems per CPU. Microprocessor- controlled drive and formatter. Includes H9646 cabinet.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
1 Hex slot Dedicated CAB	1.5	1	RSX-11M, RSX-11M-PLUS, RSTS/E

MOUNTED IN VAX-11/780 CABINETS

TEE16-AE
TEE16-AJ

9-track, 45 inches per second, 800 or 1600 bits per inch, TE16 magnetic tape transport and VAX-11/780 MASSBUS adapter. Industry compatible. Expandable to total of eight TE16 transports. (Note: requires Massbus port in CPU or H9602-HA(HB).)

TEU45-KA *TEU45-KB*	9-track, 75 inches per second, 800 or 1600 bits per inch, TU45 magnetic tape transport and VAX-11/780 MASSBUS adapter. Industry compatible. Expandable to total of eight TU45 transports. (Note: requires Massbus port in CPU or H9602-HA(HB).)
TEU77-AB *TEU77-AD*	9-track, 125 inches per second, 800 or 1600 bits per inch, TU77 magnetic tape transport and VAX-11/780 MASSBUS adapter. Expandable to a total of 4 TU77 transports. (Note: requires Massbus port in CPU or H9602-HA(HB).)

ADD-ON MAGNETIC TAPE TRANSPORTS MOUNTED IN H9602 CABINETS

TE16-AE *TE16-AJ*	9-track, 45 inches per second, 800 or 1600 bits per inch, industry compatible half-inch magtape transport. Includes H9602, a single width high-boy cabinet. **PREREQUISITE:** TJE16-A, TWE16-A or TEE16 subsystem.
TU77-AF *TU77-AJ*	9-track, 125 inches per second, 800 or 1600 bits per inch, industry compatible half-inch magtape transport. 200,000 bytes per second peak transfer rate. Includes H9602, a single width high-boy cabinet. **PREREQUISITE:** TJU77-A, TWU77-A or TEU77 subsystem.
TE10W-AE *TE10W-AJ*	Free-standing, nine-track magnetic tape transport. 17M character/reel, 45 inches per seconds R/W speed. 800 bits per inches tape density. Includes H9602, a single width high-boy cabinet. **PREREQUISITE:** TME11-A subsystem.

ADD-ON MAGNETIC TAPE TRANSPORTS MOUNTED IN H960 CABINETS

TE16-EE *TE16-EJ*	9-track, 45 inches per second, 800 or 1600 bits per inch, industry compatible half-inch magtape transport. Includes H960 cabinet. **PREREQUISITE:** TJE16-E or TWE16-E subsystem, (except PDP-11/60).
TE10W-EE *TE10W-EJ*	9-track, 45 inches per second, 800 bits per inch, industry compatible half-inch magtape transport. Includes H960 cabinet. **PREREQUISITE:** TME11-E subsystem.

VAX-11/780 ADD-ON MAGNETIC TAPE TRANSPORTS

TU45-KE *TU45-KF*	Program-selectable 800 or 1600 bits per inch, 9-track, 75 inches per second magnetic tape transport unit. Industry compatible. **PREREQUISITE:** TEU45 magnetic tape subsystem.

INPUT/OUTPUT

HARDCOPY TERMINALS

LA36-HE
LA36-HF

EIA/CCITT version Free-standing DECwriter II hardcopy terminal with numeric keypad. 30 characters per second, 96 characters.
PREREQUISITE: DL11-WB or equivalent.

LA36-CE
LA36-CJ

20mA version Free-standing DECwriter II hardcopy terminal. 30 characters per second, 96 characters.
PREREQUISITE: DL11-WA or equivalent.

LA35-CE
LA35-CJ

20mA version of the LA36 Free-standing DECwriter printer with no keyboard. (Receive only)
PREREQUISITE: DL11-WA or equivalent.

LA37-PE
LA37-PJ

EIA version Free-standing DECwriter II hardcopy terminal, plus special character set for APL-11 software.
PREREQUISITE: DL11-WB or equivalent.

LA37-CE
LA37-CJ

20mA version Free-standing DECwriter II hardcopy terminal, plus special character set for APL-11 software.
PREREQUISITE: DL11-WA or equivalent.

LA38-GA

Table-top DECwriter IV printing terminal. Includes universal power supply, standard EIA interface and EIA null modem cable. Variable horizontal tabs and margins, four character sizes, six line spacings and printhead adjustment. 18-button numeric keypad, 30-character per second print speed and baud rates up to 300 bits per second.
PREREQUISITE: DL11-WB or equivalent.

LA38-HA

Free-standing DECwriter IV printing terminal. Includes stand, universal power supply, standard EIA interface and EIA null modem cable. Variable horizontal tabs and margins, four character sizes, six line spacings and printhead adjustment. 18-button numeric keypad, 30-character per second print speed and baud rates up to 300 bits per second.
PREREQUISITE: DL11-WB or equivalent.

LA120-DA

EIA version high speed interactive hardcopy free-standing terminal. Includes universal power supply. 180 characters per second. Up to 9600 baud. 7x7 dot matrix. Contoured typewriter-styled keyboard with N-key rollover.

NOTE: Communication cables are not provided with the LA120 terminal and must be ordered separately. The recommended cables are: 1) BC03M for local connection of the LA120 to a line unit, and 2) BC05D for connection of the LA120 to a modem.

LA12X-AL

20mA conversion kit for LA120.

LAXX-KG

EIA/CCITT adapter, allows an LA36 to connect to an EIA/CCITT interface.

LSI-11 LINE PRINTERS

LPV11-PA
LPV11-PD

Free-standing, 180 cps printer with serial line interface. 3 inch to 132 column width. 96 character ASCII set.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
LSI-11 Double slot FS	1.0	1

LPV11-VA
LPV11-VD

Free-standing 300 LPM, 64 character line printer.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
LSI-11 Double slot FS	1.0	1

LPV11-WA
LPV11-WD

Free-standing 240 LPM, 64 character line printer.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
LSI-11 Double slot FS	1.0	1

UNIBUS LINE PRINTERS

LP11-CA
LP11-CD

900 lines per minute. 132 column, 64 character high speed line printer and control unit.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
Quad slot FS	1.5	1

LP11-DA
LP11-DD

660 lines per minute. 132 column, 96 character high speed line printer and control unit.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
Quad slot FS	1.5	1

LP11-YA
LP11-YD

600 lines per minute. 132 column, 64 character line printer and control unit.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
Quad slot FS	1.5	1

LP11-ZA
LP11-ZD

600 lines per minute when using 64 ASCII character set and 436 lines per minute when using 96 ASCII character set. 132 column, 96 character line printer and control unit.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
Quad slot FS	1.5	1

| LP11-VA LP11-VD | 300 lines per minute. 132 column, 64 character line printer and control unit. |

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
Quad slot FS	1.5	1

| LP11-AA | 285 lines per minute, 64 ASCII character set, 132 column band line printer and control unit with cable. |

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
1 Quad slot FS	1.5	1

| LP11-BA | 285 lines per minute when using 64 ASCII character set and 204 lines per minute using 96 ASCII character set. 132 column band line printer and control unit with cable. |

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
1 Quad slot FS	1.5	1

| LP11-WA LP11-WD | 240 lines per minute. 132 column, 96 character line printer and control unit. |

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
Quad slot FS	1.5	1

| LA11-PA LA11-PD | 180 characters per second. 132 column, 96 character line printer (LA180 Line Printer) and control unit. |

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
Quad slot FS	1.5	1

LP05K-LL

Long line interface for the LP11-V/W or the LP11-Y/Z printer systems. Allows for up to 2,000 feet (608m) between computer and printer.
PREREQUISITE: LP11-V/W or LP11-Y/Z.

VIDEO TERMINALS

VT100-AA
VT100-AB
High performance video display terminal. (Table-top) Features include double-width/double-size characters, 80 columns x 24 lines or 132 columns x 14 lines, detached keyboard, line-drawing graphic characters, smooth scrolling, split screen, reverse video or underline character attribute and composite video input/output. The VT100 operates on full-duplex asynchronous communication lines, and is supplied with a standard EIA interface.
PREREQUISITE: DZ11-A, DL11-WB, DZ11-E, DLV11 or equivalent.)
NOTE: Communication cables are not provided with the VT100 terminal and must be ordered separately. The recommended cables are: 1) BC03M for local connection of the VT100 to a line unit, and 2) BC05D for connection of the VT100 to a modem.

VT1XX-AB
Advanced Video option for VT100. Provides all four character attributes: BOLD, BLINK, UNDERLINE, and REVERSE VIDEO in any combination. Adds 10 additional lines of 132-column data for a total of 132 columns x 24 lines.

VT1XX-AA
20mA current loop adapter for VT100. Allows a VT100 terminal to connect to a 20mA current loop interface. Includes BC05F-15 cable.

VT61-AA
VT61-AB
Table-top intelligent text processing video display terminal. LSI-11, 20mA current loop.
PREREQUISITE: DL11-WA, DLV11

VT61-AE
VT61-AF
Table-top intelligent text processing video display terminal. LSI-11, 20mA current loop, limited modem control. **PREREQUISITE:** DL11-WA, DLV11

VT62-AA
VT62-AB
Table-top alphanumeric video display terminal for transaction processing applications. Form fill for user entry, function keys, reverse video, automatic cursor positioning, local error detection capability, left and right justification. 24 X 80-character upper/lower case display.
PREREQUISITE: PDP-1134A, PDP-11/60 or PDP-11/70 with DZ11-C, DZ11-F, or equivalent.)

NOTE: Communication cables are not provided with the VT62 terminal and must be ordered separately. The recommended cables are: 1) BC03Z for local connection of the VT62 to a line unit, and 2) BC05D for connection of the VT62 to a modem.

VT62-AC
VT62-AD
Table-top alphanumeric video display terminal for transaction processing applications. Form fill for user entry, function keys, reverse video, automatic cursor positioning, local error detection capability, left and right justification. 24 X 80-character upper/lower case display. EIA interface. **PREREQUISITE:** DZ11-A, DZ11-E.

NOTES:

1. Local terminals are designed for direct connection to the computer and may have either an EIA or 20mA interface. The computer must have the same type of interface. Local connection of EIA terminals require a BC03M null modem cable or an H312-A null modem.

2. Remote terminals connect to computers via telephone lines to EIA/CCITT standard interfaces.

3. Remote terminal and data set characteristics (baud rate, etc.) must be matched by the data set and interface at the computer site.

UNIBUS COMMUNICATIONS OPTIONS

AUXILIARY PROCESSOR OPTIONS

KMC11-A   High speed general purpose MSI microprocessor that interfaces to PDP-11 UNIBUS. It uses a 72-bit microcode and operates on 8-bit data paths. Storage: 1024 16-bit word writable control memory, and 1024 16-bit data memory. NPR UNIBUS interface provides 8- or 16-bit direct memory access to data buffers or control blocks located in PDP-11 memory under microprogram control. External connector furnished to allow direct connection to high-speed peripheral such as DMC11 synchronous line unit.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Hex slot	5.0	1	RSX-11M, IAS

SINGLE LINE ASYNCHRONOUS INTERFACES

DL11-WB   EIA/CCITT serial line interface and line frequency real-time clock. Switch selectable character size, parity, stop bits and speed of operation. The line frequency clock is used when this option is the console interface on an PDP-11/04 or PDP-1134A. The DL11-WB requires a null modem with local devices; in private communication modems are also required. Includes 25 ft. (7.6m) cable for connection to modem.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
Quad slot	2.0	0.05	0.15	1	RT-11, RSX-11M, RSTS/E RSX-11M-PLUS, IAS

DL11-WA   20mA serial line interface and line frequency real-time clock. Switch selectable character size, parity, stop bit, and speed of operation. Switch selectable active or passive transmitter and receiver. The line frequency clock is used when this option is the console interface on an PDP-11/04 or PDP-1134A. Includes cable.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
Quad slot	2.0	0.05	0.15	1	RT-11, RSX-11M, RSTS/E RSX-11M-PLUS, IAS

DL11-E   Modem controlling EIA/CCITT serial line interface with a feature which allows a customer to specify speed, character size, parity, and stop bit size. Includes 25 ft. (7.6 m) of cable for connection to modem.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
Quad slot	1.8	0.05	0.15	1	RT-11, RSX-11M, RSTS/E, RSX-11M-PLUS, IAS

ASYNCHRONOUS MULTIPLEXERS (PROGRAMMED I/O)

DZ11-A   Asynchronous 8-line multiplexer for EIA/CCITT terminals or lines. Features programmable speeds (up to 9600 bits per second) and formats on a per-line basis. Can expand to 16 lines with an addition of a DZ11-B. Includes data set control for use with Bell 103 or 113 modems or equivalent. For modems, BC05D cables are needed. For local connect of EIA/CCITT terminals, use BC03M-XX series of cables.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
Hex slot and DISTRIBUTION PAN	2.2	0.1	0.13	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E IAS, VAX/VMS

DZ11-B   Eight-line EIA/CCITT expansion multiplexer for the DZ11-A.
PREREQUISITE: DZ11-A.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
Hex slot	2.2	0.1	0.13	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E IAS, VAX/VMS

DZ11-C   Asynchronous 8-line multiplexer for 20mA current loop terminals. Features programmable speeds (up to 9600 bits per second) and formats on a per-line basis. Use BC04R-12 cable for DIGITAL 20mA terminals. Includes distribution panel with (16) 4-screw terminal strips. Can expand to 16 lines.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
Hex slot and DISTRIBUTION PAN	2.1	0.12	0.4	1	RT-11, RSX-11M RSX-11M-PLUS, RSTS/E IAS, VAX/VMS

DZ11-D   Eight-line 20mA current loop expansion multiplexer for the DZ11-C.
PREREQUISITE: DZ11-C.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
Hex slot	2.1	0.12	0.4	1	RT-11, RSX-11M RSX-11M-PLUS, RSTS/E IAS, VAX/VMS

DZ11-E   Asynchronous 16-line multiplexer for EIA/CCITT terminals or lines. Features programmable speeds (up to 9600 bits per second) and formats on a per-line basis. Includes data set control for use with Bell 103 and 113 modems or equivalent. For modems, BC05D cables are needed. For local connect of EIA/CCITT terminals, use BC03M-xx series of cables.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
2 Hex slots and DISTRIBUTION PAN	4.4	0.2	0.26	2	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E IAS, VAX/VMS

DZ11-F   Asynchronous 16 line multiplexer for 20mA current loop terminals. Features programmable speeds (up to 9600 bits per second) and formats on a per-line basis. Use BC04R-12 cables for DIGITAL 20mA terminals.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
2 Hex slots and DISTRIBUTION PAN	4.2	0.24	0.8	2	RT-11, RSX-11M RSX-11M-PLUS, RSTS/E IAS, VAX/VMS

ASYNCHRONOUS MULTIPLEXERS (NPR OUTPUT)

DH11-AA
DH11-AC   Programmable asynchronous 16-line multiplexer and mounting panel. Includes space for up to 4 DM11 line adapters. Character length, parity, stop bits and baud rates (up to 9600) are programmable on an individual line basis. EIA/CCITT and 20mA lines may be mixed (in 4-line groups). Output transfers are NPR, input transfers silo buffered programmed I/O.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
2 SUs and SM PAN	8.4	0.0	0.24	2	RSX-11M, RSTS/E, RSX-11M-PLUS, IAS

DH11-AD   Complete programmable asynchronous 16-line multiplexer. EIA/CCITT only. **Includes modem control.** Does not include cables. For modems BC05D-25 cables are needed. For local connect of EIA/CCITT terminals, use BC03M-XX series cables.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
2 SUs and DISTRIBUTION PAN	10.8	0.4	0.65	3	RSX-11M, RSTS/E, RSX-11M-PLUS, IAS

DH11-AE   Complete programmable asynchronous 16-line multiplexer. EIA/CCITT. **Does not include modem control.** Does not include cables. For local connect of EIA/CCITT terminals use BC03M-XX series cables.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
2 SUs and DISTRIBUTION PAN	8.6	0.1	0.34	2	RSX-11M, RSTS/E, RSX-11M-PLUS, IAS

DM11-BB   16-line modem control multiplexer for program operation of control leads for 103, 202, or equivalent data sets.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
DH11-AA	2.4	1

LINE ADAPTERS

DM11-DA   Line adapter for four 20mA terminals.
           PREREQUISITE:DH11-AA

DM11-DB   Line adapter for four EIA (data only). Includes four 25 foot (7.6m) modem cables.
           PREREQUISITE:DH11-AA

DM11-DC   Line adapter for four EIA/CCITT compatible lines which, when used with a DM11-BB, provides
           modem control. Includes four 25 foot (7.6m) modem cables.
           PREREQUISITE:DH11-AA and DM11-BB

SINGLE LINE SYNCHRONOUS INTERFACES

DUP11-DA   Full/half-duplex synchronous interface. Can be programmed to handle 8 bit character-oriented
           protocols such as DDCMP and BISYNC and bit-oriented protocols such as SDLC and HDLC.
           Hardware calculates CRC-16 when using DDCMP protocol (not BISYNC) and CRC/CCITT when
           using bit-oriented protocols. Interfaces to Bell 200 series modems or equivalent at speeds up to
           9600 bits per second. Includes 25 ft. (7.6m) modem cable and data set control.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
Hex slot	3.6	0.08	0.08	1	DECnet-RT, RSX-11M, RSX-11M-PLUS, DECnet-11M, DECnet-IAS

DU11-DA   Full/half-duplex synchronous interface. Programmable sync character, character size, and format
           (5 to 8 data bits, plus odd, even, or no parity). Transmission speeds up to 9600 bps. Interfaces to
           Bell 200 Series modems or equivalent. 25 foot (7.6m) modem cable provided. Data set control
           included. Cannot be used with bit-oriented protocols such as SDLC and HDLC.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Quad slot	2.0	1	DECnet-RT, RSX-11M, DECnet-11M, DECnet-IAS

KG11-A   Communications arithmetic option. Computes cyclic redundancy check (CRC), longitudinal redun-
           dancy check (LRC), and block check characters (BCC).
           PREREQUISITE: DUP11, or DQ11.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
Quad slot	1.5	1

LOCAL NETWORK LINK MODULES

DMC11-AL   Network link DDCMP microprocessor module (local). DDCMP protocol is implemented in hard-
           ware for high speed NPR input and output transfers. One DMC11-AL operates at 1,000,000 bits per
           second in full-duplex mode. Two DMC11-ALs operate 1,000,000 bits per second in half-duplex
           mode. (Requires DMC11-MA or DMC11-MD line units.)

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Hex slot	5.0	1	DECnet-RT, RSX-11M, RSX-11M-PLUS, DECnet-11M DECnet/E, DECnet-IAS VAX/VMS

DMC11-MA   Network Link line unit module (local), with data transmissions of 1,000,000 bits per second. Provides high speed connection to another local DMC11 using coaxial cable up to 6000 ft. (1829m) long. (Includes built-in modem). Operates full-duplex with two cables and half-duplex with a single cable. Cables not included. BC03N is recommended.
PREREQUISITE: DMC11-AL.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V	N/A	DECnet-RT, RSX-11M,
Hex slot					RSX-11M-PLUS, DECnet-11M,
(next to DMC11-AL)	3.0	0.18	0.46		DECnet/E, DECnet-IAS,
					VAX/VMS

DMC11-MD   Network Link line unit module (local), with data transmissions of 56,000 bits per second. Provides high speed connection to another local DMC11 using coaxial cable up to 18,000 ft. (5,487m) long. (Includes built-in modem). Operates full-duplex with two cables and half-duplex with a single cable. Cables not included. BC03N is recommended.
PREREQUISITE: DMC11-AL.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V	N/A	DECnet-RT, RSX-11M,
Hex slot					RSX-11M-PLUS, DECnet-11M,
(next to DMC11-AL)	3.0	0.18	0.46		DECnet/E, DECnet-IAS,
					VAX/VMS

REMOTE NETWORK LINK MODULES

DMC11-AR Network link DDCMP microprocessor module (remote). DDCMP protocol implemented in hardware for remote operation. Operates full or half-duplex. NPR input and output transfers. Includes firmware for unattended operation (remote load detect). Requires DMC11-DA or DMC11-FA line unit.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Hex slot	5.0	1	DECnet-RT, RSX-11M, RSX-11M-PLUS, DECnet-11M, DECnet/E, DECnet-IAS, VAX/VMS

DMC11-DA Network link line unit module (remote). Interfaces to EIA/CCITT synchronous modems (Bell series 200 compatible) at speeds up to 19,200 bits per second. Operates full or half-duplex. Includes data set control for switched network operations. Can be used to communicate over common carrier facilities to another DMC11 or to a synchronous interface with software implementation of DDCMP version 3.2. Includes 25 ft. (7.6m) modem cable.
PREREQUISITE: DMC11-AR.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
Hex slot (next to DMC11-AR)	3.0	0.03	0.31	N/A	DECnet-RT, RSX-11M, RSX-11M-PLUS, DECnet-11M, DECnet/E, DECnet-IAS, VAX/VMS

DMC11-FA Network link line unit module (remote). Interfaces to CCITT V.35/DDS synchronous modems (Bell 500A L1/5 or equivalent) at speeds up to 250,000 bits per second. Includes data set control for full or half-duplex, private wire operation. Can be used to communicate over common carrier facilities to another DMC11 or to a synchronous interface with software implementation of DDCMP version 3.2. Includes 25 ft. (7.6m) modem cable.
PREREQUISITE: DMC11-AR.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
Hex slot (next to DMC11-AR)	3.0	0.03	0.31	N/A	DECnet-RT, DECnet/E, RSX-11M, DECnet-11M, RSX-11M-PLUS, IAS, DECnet-IAS, VAX/VMS

DQ11-DA Full/half-duplex NPR synchronous interface for speeds up to 10,000 bits per second. EIA/CCITT termination suitable for use with Bell Series 201, 208, or 209 equivalent modems. Data set control included.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
SU	5.7	1	RSX-11M, DECnet/IAS, VAX/VMS

DQ11-EA Full/half-duplex synchronous NPR interface to Bell system 303 or equivalent modems. Transmission speeds up to 1,000,000 bits per second. Data set control included.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
SU	5.7	1	RSX-11M, DECnet/IAS, VAX/VMS

MULTIPLE LINE SYNCHRONOUS/ASYNCHRONOUS INTERFACES

DV11-AA — Synchronous/asynchronous communications preprocessor for up to 16 EIA/CCITT lines. NPR input and output transfers, table driven character processing, CRC calculation. Up to 9600 bits per second full-duplex transmission for each line. Requires one or two DV11-BA, DV11-BB, or DV11-BC line groups. Includes modem control. Power figures are given for a 16 asynchronous line configuration.

Mounting Code	Power Drawn Amps			Bus Loads Drawn	System Software
	@+5V	@+15V	@-15V		
2 SUs	20.5	0.6	1.0	2	DECnet-IAS

DV11-BA — 8-line synchronous group for use with DV11-AA. Can handle character-oriented protocols with switch-selectable character size and format (5 to 8 data bits plus odd, even, or no parity). Program selectable per line choice of two switch-selectable sync characters. Includes internal clock for local connection using H312-A null modem with switch-selectable speeds. Switch-selectable parameters are on a four-line basis. Does not include cables.
PREREQUISITE: DV11-AA.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
DV11-AA and DISTRIBUTION PAN	2.6	N/A

DV11-BB — 8-line asynchronous group for use with DV11-AA. Features programmable speeds and formats on a per line basis. Does not include cables.
PREREQUISITE: DV11-AA.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
DV11-AA and DISTRIBUTION PAN	4.0	N/A

DV11-BC — 8-line synchronous/asynchronous group for use with DV11-AA. Four lines are synchronous (equivalent to DV11-BA lines). Four lines are asynchronous (equivalent to DV11-BB lines). Does not include cables.
PREREQUISITE: DV11-AA.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
DV11-AA and DISTRIBUTION PAN	3.3	N/A

AUTO DIAL INTERFACES

DN11-AA — System unit mounting and control requires up to 4 DN11-DA module sets.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
1 SU	N/A	N/A

DN11-DA — Module set interface to Bell 801 ACU. Includes 25 ft. (7.6m) cable.
PREREQUISITE: DN11-AA.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn
DN11-AA	1.0	1

COMMUNICATIONS ACCESSORIES

BC03M-XX   Null modem cable allows local connection of asynchronous interfaces or terminals having EIA interfaces. The following lengths are available: 25 ft. (7.6m), 100 ft. (30.5m), 250 ft. (76.2m), 500 ft. (152.4m), 1000 ft. (304.8m) cable (3 shielded twisted pair) with two DB25S sockets.

BC04R-12   Four spade lugs to male AMP Mate-N-Lok connector.

BC03N-A0   100 ft. (30.5m) coaxial cable for use with local DMC11 line units. When interconnecting a pair of line units one cable is required for half-duplex operation and two cables are required for full duplex operation. DMC11-MA or DMC11-MD. Use Belden cable type 8232 or equivalent for lengths greater than 100 ft.

BC05D-XX   EIA extension cable for use with cinch DB25S socket and DB25P plug. The following lengths are available: 10 ft. (3.0m) and 25 ft. (7.6m)

BC11S-25   Cable, H856 to H856, 18 twisted pair. For use with LA180.

H312-A   Null modem allows direct connection of EIA interfaces. When interconnecting two synchronous devices, an external clock has to be provided. When connecting two interfaces which do not include cables, BC05D cables should be used.

NOTES:

1. DL11-E customers must specify data rate from the following speeds: 50, 75, 134.5, 200, 300, 600, 1200, 1800, 2400, 4800, or 9600 bits per second. The following alternatives must be specified for DL11s:
Character size: 5, 6, 7, or 8 data bits.
Parity: even, odd, or none.
Stop bits: 1, 1.5 (5-bit characters only), or 2 (6-8-bit characters only).

2. DL11-WA and DL11-WB data rates are switch-selectable and must be specified from the following speeds: 110, 150, 300, 600, 1200, 2400, 4800, 9600 bits per second. Character formats are switch-selectable.

REAL-TIME I/O OPTIONS

UNIBUS REAL-TIME I/O OPTIONS

LPA11-K   The LPA11-K is an intelligent controller and data mover that transfers 16-bit words between PDP-11 memory and specified analog-to-digital, digital-to-analog, or digital I/O devices.
MOUNTING NOTES: The LPA11-K mounts in **one hex slot** in a standard UNIBUS backplane.
It also uses the first **Quad slot** and the first **Hex slot** in the next DD11-C or DD11-D backplane for the LPA11-K modules. *DD11-C(or D) is not included with this option.*
Any additional slots available in the LPA11-K backplane can be used for mounting the AR11, AD11-K, AA11-K, DR11-K, AM11-K, or KW11-K I/O interfaces.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
See mounting notes		1	RSX-11M, RSX-11M-PLUS
	5.0		VAX/VMS
LPA11 backplane:	8.0		

LPA11-KF   Package of LPA11-K memory access controller, ADK11-KT analog to digital converter package, and DD11-CF backplane.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
SU plus 1 adjacent UNIBUS Hex slot plus SM pan	UNIBUS: 5.0 LPA11: 14.5	1	RSX-11M, RSX-11M-PLUS VAX/VMS

LPA11-KK   Package of LPA11-K memory access controller, ADK11-KT analog to digital converter package and DD11-CK backplane.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
SU plus 1 adjacent UNIBUS Hex slot plus SM pan	UNIBUS: 5.0 LPA11: 14.5	1	RSX-11M, RSX-11M-PLUS VAX/VMS

AA11-K   4-channel 12-bit digital-to-analog converter and scope control.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Quad slot (UNIBUS or LPA11-K bus)	2.5	1	RT-11, RSX-11M, IAS VAX/VMS

AA11-KT   Package of AA11-K digital-to-analog converter, H322 distribution panel and BC08R cable.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Quad slot (UNIBUS or LPA11-K bus) DISTRIBUTION PAN	2.5	1	RT-11, RSX-11M, IAS VAX/VMS

AD11-K   12-bit 16-channel single-ended/8-channel true differential analog-to-digital converter with self test and software controlled Vernier offset.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Quad slot (UNIBUS or LPA11-K bus)	3.5	1	RT-11, RSX-11M, IAS VAX/VMS

ADK11-KT   Package of AD11-K analog-to-digital converter, KW11-K real-time clock, H322 distribution panel and two BC08R cables.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Quad slot, Hex slot, (UNIBUS or LPA11-K bus) DISTRIBUTION PAN	6.5	2	RT-11, RSX-11M, IAS VAX/VMS

AM11-K   48-channel single-ended 24 channel differential expander or switch gain multiplexer. 6 gain levels per 16 channels.
PREREQUISITE: AD11-K or AD11-KT.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
DISTRIBUTION PAN	N/A	N/A	RT-11, RSX-11M, IAS VAX/VMS

AR11   Analog real-time subsystem; includes 10-bit analog-to-digital, 16-channel multiplexer, sample and hold, two 10-bit digital-to-analog converter, scope control, and crystal clock with programmable frequencies. Normally used with BC08R cables and H322 distribution cable.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Hex slot (UNIBUS or LPA11-K bus)	3.5	2	RT-11, RSX-11M, IAS

AR11-KT   Package of AR11 analog real-time subsystem, H322 distribution panel and two BC08R cables

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Hex slot, (UNIBUS or LPA11-K bus) DISTRIBUTION PAN	3.5	2	RT-11, RSX-11M, IAS

DR11-B   Direct memory access interface. Moves data directly between user's device and memory (NPR operation). Includes word count, current address, and data registers.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
1 SU	3.3	1	RT-11, RSX-11M, IAS VAX/VMS

DR11-C
General purpose digital interface. Permits bi-directional 16-bit parallel transfers between the user's device and the UNIBUS. Includes all necessary interrupt, address, and control signals and all required cable connectors.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Quad slot	1.5	1	RT-11, RSX-11M, IAS

DR11-K
General purpose digital interface. Permits bi-directional 16-bit parallel transfers between the user's device and the UNIBUS. Each input line can generate an interrupt. Includes all necessary interrupt, address, and control signals.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Hex slot (UNIBUS or LPA11-K bus)	2.5	1	RT-11, RSX-11M, IAS VAX/VMS

DR11-KT
Package of DR11-K general purpose digital interface, H322 distribution panel and two BC08R cables.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Hex slot, (UNIBUS or LPA11-K bus) DISTRIBUTIION PAN	2.5	1	RT-11, RSX-11M, IAS VAX/VMS

KW11-K
Dual programmable real-time clock. One 16-bit clock and one 8-bit clock, 5 crystal controlled frequencies, 1 external, 1 line frequency, and 1 special frequency, 3 Schmitt triggers and 4 modes of operation.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
Hex slot (UNIBUS or LPA11-K bus)	3.0	1	RT-11, RSX-11M, IAS VAX/VMS

KW11-P
Programmable real-time clock. Program-selectable interrupts of 100 kHz, 10 kHz, line frequency or external signal.

Mounting Code	Power Drawn Amps@+5V	Bus Loads Drawn	System Software
1 Quad slot	1.0	1	RT-11, RSX-11M, IAS VAX/VMS

I/O ACCESSORIES

H322	Distribution panel. Distributes signals from two 40-pin Berg connectors to nine 10-screw terminal strips. Normally used with BC08R cables.
H323-B	Table-top Analog Panel. Four channel analog potentiometer panel used in conjunction with A/D options such as the AR11 or AD11-K for the purpose of providing a variable voltage input. **PREREQUISITE:** H322 distribution panel.
BC08R-XX	Cable, berg to berg, round twisted. The following lengths are available; 20 ft. (6.1m), 25 ft. (7.6m), 50 ft. (15.2), 60 ft. (18.3m), or 100 ft. (30.5m). May be used with DR11 or AR11.
M105	Address selector module - four addresses. Power required: 0.3 Amps at +5V.
M783	Unibus transmitter module - 12 drives. Power required: 0.2 Amps at +5V.
M784	Unibus receiver module - 16 receivers. Power required: 0.2 Amps at +5V.
M785	Unibus transceiver module - eight drivers, eight receivers. Power required: 0.3 Amps at +5V.
M786	General purpose interface module - 16 flip-flop register with bus receivers and transmitters.
M920	Unibus connector module - interconnects system units.
M7821	Interrupt control module - two interrupts.

INDUSTRIAL PRODUCTS

INDUSTRIAL CONTROL MICROCOMPUTERS

IP302-A
IP302-D

Industrial process I/O system, includes; H960 cabinet with power supply and I/O control (master chassis will house up to eight process I/O modules), LSI-11 CPU with 56Kb MOS memory and KEV11 extended instuction set, Boot and terminator, dual drive floppy disk (512Kb) and LA36 DECwriter II terminal. This system comes with the RSX-11S operating system.
PREREQUISITE:RSX-11M system with floppy disk.

IP302-VA
IP302-VD

Same as IP302-A(D) except console terminal is VT100-AA.
PREREQUISITE:RSX-11M system with floppy disk.

IP302-E
IP302-J

Same as IP302-A(D) except unsupported RSX-11S.

IP302-VE
IP302-VJ

Same as IP302-E(J) except console terminal is VT100-AA.

UNPACKAGED INDUSTRIAL CONTROL MICROCOMPUTERS

IP302-XK
IP302-XN

Industrial process I/O system, includes; I/O control (master chassis will house up to eight process I/O modules), LSI-11 CPU with 56Kb MOS memory and Boot and terminator. This system comes with the RSX-11S Category D license.
PREREQUISITE:RSX-11S on IP300/IP302 subsystem or on RSX-11M development system.

LSI-BUS INDUSTRIAL I/O SUBSYSTEM

IPV12-AA
IPV12-AD

Industrial process I/O system, includes; H960 cabinet with power supply and I/O control (master chassis will house up to ten process I/O modules). Software documentation is included.
PREREQUISITE:RSX-11M Operating System V 3.2 or RSX-11S Operating System V 2.2

UNIBUS INDUSTRIAL I/O SUBSYSTEM

IP112-AA
IP112-AD

Industrial process I/O system, includes; H960 cabinet with power supply and I/O control (master chassis will house up to eight process I/O modules). Software documentation is included.
PREREQUISITE:RSX-11M Operating System V 3.2

IP113-AA
IP113-AD

Industrial process I/O system, includes; H960 cabinet with power supply and I/O control (master chassis will house up to eight process I/O modules). Software documentation is included.
PREREQUISITE:RSX-11M-PLUS Operating System V 1.0

I/O SUBSYSTEM CABINET

H9646-AC   60in H Cabinet includes power supply and fans
H9646-AD

DISTRIBUTED PLANT MANAGEMENT SYSTEMS (DPM)

DPM HOST SYSTEM KITS

DPM 2M-AD   DPM system kit for RSX-11M host with full software support.
Distribution media: 800bpi magtape.
PREREQUISITE:RSX-11M Operating System

DPM 2M-AH   DPM system kit for RSX-11M host with full software support.
Distribution media: RL02 disk.
PREREQUISITE:RSX-11M Operating System

DPM 2M-AM   DPM system kit for RSX-11M host with full software support.
Distribution media: 1600bpi magtape.
PREREQUISITE:RSX-11M Operating System

DPM 2M-DZ   DPM system kit for RSX-11M host *(license only)*.
Distribution media: 800bpi magtape (diagnostics only).
PREREQUISITE:RSX-11M Operating System

DPM 2M-DH   DPM system kit for RSX-11M host *(license only)*.
Distribution media: RL02 disk (diagnostics only).
PREREQUISITE:RSX-11M Operating System

DPM 2M-DM   DPM system kit for RSX-11M host *(license only)*.
Distribution media: 1600bpi magtape (diagnostics only).
PREREQUISITE:RSX-11M Operating System

DPM 2N-AM   DPM system kit for RSX-11M-PLUS host with full software support.
Distribution media: 1600bpi magtape.
PREREQUISITE:RSX-11M-PLUS Operating System

DPM 2N-DM   DPM system kit for RSX-11M-PLUS host *(license only)*.
Distribution media: 1600bpi magtape (diagnostics only).
PREREQUISITE:RSX-11M-PLUS Operating System

DPM 4X   Factory upgrade from two to four DECdataways for PDP-11/70 hosts.
PREREQUISITE:DPM 2M-AD/DZ

DATAWAY CONNECTOR SETS

DPMXX-A   DPM installation kit with tool.

DPMXX-B   DPM installation kit *without tool*.

DPM TERMINALS

RT801-AA   Time and attendance terminal.
RT801-AB

RT803-AA   Basic work station.
RT803-AB

RT805-AA   Area work station.
RT805-AB

RT805-XC   20 mA current loop and cable for RT805.

RT805-XD   Digital I/O and cable for RT805.

MULTIPLEXERS

DPM01-AA   Four line dataway Mux.
DPM01-AB

VT110-AA   VT100-AA video display terminal with DPM01-MS module set.
VT110-AB

I/O SUBSYSTEMS

DPM23-A   Programmable Dataway subsystem with full software support (RXS-11S). 11/23 CPU with 64Kb
DPM23-D   MOS memory.

DPM23-K   Programmable Dataway subsystem *(license only)*. (RXS-11S). 11/23 CPU with 64Kb MOS memory.
DPM23-N

DPM23-CA   Programmable Dataway subsystem with full software support (RXS-11S) mounted in H9646 cabi-
DPM23-CD   net. 11/23 CPU with 64Kb MOS memory.

DPM23-CK   Programmable Dataway subsystem *(license only)*. (RXS-11S) mounted in H9646 cabinet. 11/23
DPM23-CN   CPU with 64Kb MOS memory.

DPM50-AA   LSI-11 based intelligent I/O subsystem *license only.*
DPM50-AB

DPM50-CA   LSI-11 based intelligent I/O subsystem with full software support.
DPM50-CB

DPM50-FA   11/23 based distributed I/O subsystem *license only.*
DPM50-FB

DPM50-HA   11/23 based distributed I/O subsystem with full software support.
DPM50-HB

I/O SUBSYSTEMS MODULES AND OPTIONS

A014   Analog to Digital Converter with 16 single-ended or 8 differential input channels.

A020   Analog to Digital Converter with 16 single-ended or 8 differential input channels.

A156   MUX for 32 single-ended or 16 differential channels for A014.

A157   Programmable gain MUX for 16 differential channels for A014.

A630   Four channel digital to analog output.

ATR16   16 channel thermocouple temperature reference panel.

BC40-A   Screw terminal strips and cable for all modules *except* M5013, M6012, M6013.

BC40-B   Screw terminal strips and cable for M5013, M6012, M6013.

BC40-L   Screw terminal strips and cable for customer use.

G7272   LSI-11 bus continuity module.

H332   10 slot screw terminal mounting rack.

H334-E   I/O expansion chassis with power.
H334-J

M5010   32-bit non-isolated DC sense input module.

M5011   16-bit non-isolated DC interrupt input module.

M5012   16-bit isolated DC sense input module.

M5012-YA	16-bit isolated DC sense with TTL compatible inputs.
M5013	8-bit isolated AC sense input module.
M5014	16-bit dual input counter.
M5016	16-bit quad input counter.
M5031	16-bit isolated DC input module.
M6010	32-bit non-isolated DC output module.
M6010-YA	32-bit non-isolated DC with TTL compatible outputs.
M6011	16-bit single shot DC output module.
M6012	8-bit isolated DC output module.
M6013	8-bit isolated AC output module.
M6014	16-bit dual output generator.
M6015	16-bit isolated retentive DC output module (also operates as a isolated DC output module).

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RT-11 SYSTEM SOFTWARE

(QJ013) RT-11 OPERATING SYSTEM

DESCRIPTION: RT-11 is a disk based, single-user real time operating system designed for interactive program development and on-line processing of application programs on the PDP-11 or PDT-11.

RT-11 supports both single job and foreground/background modes of processing. In addition to a variety of system and program development utilities, RT-11 offers optional support of a number of high-level language processors, including FORTRAN IV, BASIC, MU BASIC, APL, MACRO, and FOCAL.

The operating system is designed for the single interactive user, with English language commands that are consistent in format and easy to understand. System messages are clear and concise.

Other features include: contiguous file structure providing fast and efficient file manipulation, device-independent I/O programming, flexible real-time I/O, memory management support, limited multi-terminal support, low system overhead and ease of expansion. RT-11 also supports industry compatible magnetic tape, and batch processing.

Option Number	Distribution Medium	Support Category
QJ013-AC	DECtape	A
QJ013-AD	Magtape (800 bpi 9-tr)	A
QJ013-AE	DECpack (RK05)	A
QJ013-AQ	DECpack (RL01)	A
QJ013-AT	DECpack (RK06)	A
QJ013-AY	Floppy Disk (RX01)	A
QJ013-AX	Floppy Disk (RX02)	A

Additional Software for RT-11 Systems

(QJV13) RT ^{2}

DESCRIPTION: RT^2 is a license to use a subset of the RT-11 Version 03B software on a LSI-11 based system with an RK05, RL01, RX01 or RX02 floppy disk as the system device. RT^2 software provides a single job or foreground/background execute-only environment for applications developed on an RT-11 Version 03B system. It is the user's responsibility to transport the RT^2 software and the user developed software from the RT-11 Version 03B system to the target RT^2 system.

Option Number	Distribution Medium	Support Category
QJV13-DZ	No Hardware Dependency	C

(QJV41) PDT-11 2780/3780 Protocol Emulator

DESCRIPTION: The PDT-11 2780/3780 Protocol Emulator provides a PDT-11/130 or PDT-11/150 system with communications capabilities similar to IBM 2780 and 3780 remote batch terminals. The Emulator runs as a background program under the RT-11, Version 03B Foreground/Background monitor with PDT-11 support. No other programs may be run concurrently. The Emulator accepts commands interactively or from indirect command files with special operator commands provided for operation in unattended environments. The Emulator supports operation of a single full- or half-duplex synchronous line at transmission speeds up to 4800 bits per second. Support for automatic answer to incoming calls is also available for use with modem packages providing this capability.

MINIMUM HARDWARE REQUIRED: PDT-11/150 with dual floppies and 32K bytes of memory or a PDT-11/130 with dual TU58s and 32K bytes of memory. If the PDT is also to be used to generate the 2780/3780, then 60K bytes are required.

A PDP-11 System with 32K bytes of memory running RT-11 Version 03B with PDT Compatible media for generating the PDT-11 2780/3780, if the 2780/3780 is not to be generated on the run-time PDT.

PREREQUISITE SOFTWARE: RT-11 Version 03B operating system with PDT-11 support running on the PDT-11/130 or PDT-11/150

RT-11 Version 03B operating system running on a PDP-11 for generation of the PDT-11 2780/3780.

Option Number	Distribution Medium	Support Category
QJV41-AG	Magtape Cassette (TU58)	A
QJV41-AY	Floppy Disk (RX01)	A

(QJD58) RT-11/LSI-11 2780

DESCRIPTION: RT-11/LSI-11 2780 provides emulation of an IBM 2780 remote batch terminal. It runs under the RT-11 Foreground/Background monitor on a suitably equipped RT-11 (Version 2C or later) system. Any disk device supported by RT-11 for the LSI-11 can be used as a source of transmission files. Any disk or line printer supported by RT-11 for the LSI-11 can be used to receive files.

RT-11/LSI-11 2780 will run at modem speeds up to 2400 bits per second, in either foreground or background. No other tasks may run concurrently with the 2780 emulator.

MINIMUM HARDWARE REQUIRED: Any valid LSI-11 based RT-11 Foreground/Background system configuration which includes: at least 32K bytes of memory for 2780 operation in the background, at least 48K bytes of memory for 2780 operation in the foreground, a disk device, DUV11 Synchronous Line Interface, REV11-A or -B bootstrap with memory refresh terminator and a Terminal (LA32, VT52).

PREREQUISITE SOFTWARE: RT-11 operating system, Version 2C or later.

Option Number	Distribution Medium	Support Category
QJD58-AE	DECpack (RK05)	A
QJD58-AQ	DECpack (RL01)	A
QJD58-AY	Floppy Disk (RX01)	A

(QJ813) FORTRAN IV/RT-11

DESCRIPTION: FORTRAN IV/RT-11 is an extended superset of the ANSI standard FORTRAN IV language. Its features include: fast compile time, optimized output for fast execution, very efficient code generation, and direct access I/O. The compiler and run time system can be effectively utilized in 16K bytes of memory.

Option Number	Distribution Medium	Support Category
QJ813-AC	DECtape	B
QJ813-AD	Magtape (800 bpi 9-tr)	B
QJ813-AE	DECpack (RK05)	B
QJ813-AG	DECtape II (TU58)	B
QJ813-AQ	DECpack (RL01)	B
QJ813-AT	DECpack (RK06)	B
QJ813-AY	Floppy Disk (RX01)	B

(QJ913) BASIC-11/RT-11

DESCRIPTION: BASIC-11/RT-11 is a software language which offers the user upward compatibility with BASIC-PLUS-2. Features include integer data type and double precision data type for more efficient code and computational precision, new functional commands and statements, longer string lengths, FORTRAN IV-compatible call interface, and greater speed through FIS support. BASIC-11/RT-11 also offers support of lower case, especially in strings, and offers easier program development.

Option Number	Distribution Medium	Support Category
QJ913-AC	DECtape	B
QJ913-AD	Magtape (800 bpi 9-tr)	B
QJ913-AE	DECpack (RK05)	B
QJ913-AG	DECtape II (TU58)	B
QJ913-AQ	DECpack (RL01)	B
QJ913-AT	DECpack (RK06)	B
QJ913-AY	Floppy Disk (RX01)	B

(QJ830) BASIC-11/RT-11 EXTENSIONS

DESCRIPTION: This software includes RT-11 BASIC and BASIC calls to support A/D and D/A converters, digital I/O, graphics processors and terminals.

This package can be supported by any RT-11 system with an appropriate graphics or real-time device.

Option Number	Distribution Medium	Support Category
QJ830-CD	Magtape(9-tr)	C
QJ830-CE	Disk Cartridge(RK05)	C
QJ830-CY	Floppy Disk (RX01)	C

(QJ921) MU BASIC/RT-11

DESCRIPTION: MU BASIC/RT-11 is a multi-user Dartmouth standard BASIC language processor implemented as an incremental compiler.
It can be supported by any RT-11 system with at least 56K bytes of memory.

Option Number	Distribution Medium	Support Category
QJ921-AE	DECpack(RK05)	A
QJ921-AG	DECtape II (TU58)	B
QJ921-AQ	DECpack (RL01)	A
QJ921-AY	Floppy Disk (RX01)	A

(QJ922) FOCAL/RT-11

DESCRIPTION: FOCAL/RT-11 is simple, yet powerful interactive programming language which provides a complete set of statements to perform arithmetic operations, program control and I/O operations. FOCAL gives the user access to the RT-11 file system for program and data storage/retrieval. Included in FOCAL are support for: double precision (17 decimal digits), calls to drive A/D and D/A converters, digital I/O, graphics processors and terminals. FOCAL/RT-11 can be supported by any RT-11 system with at least 16K bytes of memory (32K bytes of memory for double-precision).

Option Number	Distribution Medium	Support Category
QJ922-AC	DECtape	B
QJ922-AE	Disk Cartridge(RK05)	B
QJ922-AY	Floppy Disk (RX01)	B

(QJ907) APL-11 with RT-11

DESCRIPTION: APL (A Programming Language) is a mathematically-structured programming language used extensively in science, engineering, education, and business. Using APL-11, variables can be examined and changed; statements can be altered without recompilation; and program action can be readily traced. Features of APL-11 include dynamically variable user's workspace size, chaining of APL programs to previously prepared run-time programs, multiple statement lines, standard PDP-11 file naming formats, and extended single operators which allow the user to fully evaluate character strings and write user-defined functions to perform output formatting and function editing.
APL-11 supports any mass storage, unit record, or terminal device supported by RT-11.

Option Number	Distribution Medium	Support Category
QJ907-CC	DECtape	C
QJ907-CD	Magtape (9-tr)	C
QJ907-CE	Disk Cartridge (RK05)	C
QJ907-CQ	Disk Cartridge (RL01)	C
QJ907-CT	Disk Cartridge (RK06)	C
QJ907-CY	Floppy Disk (RX01)	C

(QJ647) FORTRAN Graphics Package

DESCRIPTION: The FORTRAN Graphics Package is a collection of FORTRAN-callable routines for users of FORTRAN on RT-11 operating systems who wish to use the graphics capabilities of the VT11 or VS60 display processors. The package includes DECgraphic-11 routines for the VT11 and VS60 display processors.
The FORTRAN Graphics Package can be supported by any valid RT-11 operating system configuration supporting FORTRAN IV/RT-11 and which includes at least 32K bytes of memory.
The user must have RT-11 and FORTRAN IV/RT-11.

Option Number	Distribution Medium	Support Category
QJ647-XD	Magtape (9-tr)	B
QJ647-XE	DECpack (RK05)	B
QJ647-XQ	DECpack (RL01)	B
QJ647-XT	DECpack (RK06)	B

(QJ960) SSP-11 SCIENTIFIC SUBROUTINE PACKAGE

DESCRIPTION: The Scientific Subroutine Package is a collection of one hundred or more FORTRAN subroutines which provide the user with a large cross-section of those mathematical and statistical routines commonly required in scientific programming.
Software components include FORTRAN-callable subroutines supplied in source form.
The Scientific Subroutine Package can be supported by any RT-11 plus FORTRAN IV or RSX-11M plus FORTRAN IV or RSX-11M plus FORTRAN IV-PLUS configurations with peripherals matching one of the distribution media listed below.

Option Number	Distribution Medium	Support Category
QJ960-AD	Magtape (9-tr)	B
QJ960-AE	DECpack (RK05)	B
QJ960-AQ	DECpack (RL01)	B
QJ960-AT	DECpack (RK06)	B
QJ960-AY	Floppy Disk (RX01)	B

(QJ015) INSTRUMENT Bus Subroutines

DESCRIPTION: The INSTRUMENT Bus Subroutines (IBS) consist of a library of FORTRAN callable subroutines to support the IB11 and IBV11-A interface (from an IEEE-488-1975 General-Purpose Instrument Bus) and a special device handler that is called by routines in the library. IBS allows the user to control the IEEE Bus by sending commands and controlling data transfer on as many as eight IB boards. It also allows the user to specify a FORTRAN completion routine that will be entered asynchronously when any device on the IEEE bus asserts the Service Request Bus Line.
PREREQUISITE SOFTWARE: RT-11 Version 3 or Version 03B and FORTRAN Version 2 or later.

Option Number	Distribution Medium	Support Category
QJ015-CE	DECpack (RK05)	C
QJ015-CQ	DECpack (RL01)	C
QJ015-CY	Floppy Disk (RX01)	C

(QJ980) FORTRAN IV/RT-11 EXTENSIONS

DESCRIPTION: This software package provides the FORTRAN user with: real-time support for A/D and D/A converters, digital I/O, graphics processors and terminals, and a symbolic debugger. It also includes the RT-11 FORTRAN compiler and run-time system (QJ813).
RT-11/FORTRAN & EXTENSIONS can be supported by any RT-11 system with at least 32K bytes of memory.

Option Number	Distribution Medium	Support Category
QJ980-AD	Magtape (9-tr)	B
QJ980-AE	DECpack (RK05)	B
QJ980-AQ	DECpack (RL01)	B
QJ980-AT	DECpack (RK06)	B
QJ980-AY	Floppy Disk (RX01)	B

(QJ685) DECnet/RT-11

DESCRIPTION: DECnet/RT-11 allows a suitably configured RT-11 system to participate as a phase II DECnet node in point-to-point computer networks. DECnet/RT-11 offers task-to-task communication, network file transfer, and network resource sharing capabilities using the DIGITAL Network Architicture (DNA) Protocols.
DECnet/RT-11 is avaiable as an enhancement to any valid RT-11 system with 16K bytes of additional avaiable memory and one or more of the following communication devices: DU11-DA, DUP11-DA, DMC11-AL,-MD, DMC11-AL,-MA, DL11-E, DL11-C, or DL11-WA. **Note: PDP-11/03 central processors must use the following communication devices: DUV11-DA or DLV11-E.**

Option Number	Distribution Medium	Support Category
QJ685-AD	Magtape (800 bpi 9-tr)	A
QJ685-AE	DECpack (RK05)	A
QJ685-AG	DECtape II (TU58)	A
QJ685-AM	Magtape (1600 bpi 9-tr)	A
QJ685-AQ	DECpack (RL01)	A
QJ685-AT	DECpack (RK06)	A
QJ685-AV	DECpack (RK07)	A
QJ685-AY	Floppy Disk (RX01)	A

(QJD63) RT-11/2780

DESCRIPTION: The RT-11/2780 Emulator runs under the RT-11 Foreground/Background monitor on a suitably equipped RT-11 system, providing emulation of an IBM 2780 Remote Batch Terminal. Any RT-11 supported disk device, card reader, or paper tape reader can be used as a source of transmission files; any supported disk device or line printer can be used to recieve files. RT-11/2780 can be supported by any valid RT-11 configuration with at least 32K bytes of memory for 2780 operation in the background; at least 48K bytes of memory for 2780 operation in the foreground; KW11-L line frequency clock; and suitable disk device. The user must also have: a DU11 or DUP11 synchronous line interface; and KG11-A Communications Arithmetic Element.

Option Number	Distribution Medium	Support Category
QJD63-AC	DECtape	A
QJD63-AD	Magtape (9-tr)	A
QJD63-AE	DECpack (RK05)	A
QJD63-AQ	DECpack (RL01)	A
QJD63-AV	DECpack (RK07)	A
QJD63-AY	Floppy Disk (RX01)	A

(QJ713) FMS-11

DESCRIPTION: FMS-11 is a set of utilities and subroutines that provides a multi-terminal video forms capability for programs written in MACRO-11, BASIC-11 or FORTRAN IV under the RT-11 operating system. Forms defined using FMS-11 can use the following features of DIGITAL's VT100 terminal: reverse video, bold, underline, blink, 132-column lines, jump and smooth scrolling, split screen and reverse screen. FMS-11 applications may be developed under RT-11 operating system and executed under the control of either RT-11 or its execute-only subsets, RT^2 or RT^2/PDT.

The FMS-11 system can be used as a front end in traditional source data entry applications, and also as a general purpose manager of formatted operator I/O to programs written in any of the supported languages.

Option Number	Distribution Medium	Support Category
QJ713-AE	DECpack (RK05)	A
QJ713-AG	Magtape Cassette (TU58)	A
QJ713-AQ	Disk Cartridge (RL01)	A
QJ713-AY	Floppy Disk (RX01)	A

RSX-11M SYSTEM SOFTWARE

(QJ738) RSX-11M OPERATING SYSTEM

DESCRIPTION: RSX-11M is a highly responsive, event driven, multiprogramming operating system designed for real-time process control, communications, and information management systems. The functionality, and thus the size of the executive software may be tailored to the application's needs; from a small, dedicated laboratory controller to a large, complex multi-user data acquisition, control, and retrieval system.

FEATURES: RSX-11M is an extremely flexible operating system. It imposes no requirements for division of memory into partitions when memory management hardware is present. The system dynamically schedules the execution of program units (tasks) according to a set of application defined priorities using all available memory. The association of specific tasks with predefined memory partitions is possible for optional use in highly time-critical applications.

A round-robin scheduler can be selectively used for multi-user program development and real-time operations. The checkpointing feature insures the effective use of main memory.

Tasks can be written in MACRO-11, FORTRAN IV, FORTRAN-IV-PLUS, COBOL-11, BASIC-11, BASIC-PLUS-2, or CORAL-66. A comprehensive library of multi-language interfaces to executive functions is provided, giving the high-level language and assembly language programmer easy access to powerful system functions.

Option Number	Distribution Medium	Support Category	System Disk Type
QJ738-AD	Magtape (9-tr)	A	RL01
QJ738-AQ	DECpack (RL01)	A	RL01
QJ629-AD	Magtape (9-tr)	A	RK06
QJ629-AT	DECpack (RK06)	A	RK06
QJ739-AD	Magtape (9-tr)	A	RK07
QJ739-AV	DECpack (RK07)	A	RK07
QJ737-AD	Magtape (9-tr)	A	RM02, RM03

Additional Software for RSX-11M Systems

(QP230) FORTRAN IV

DESCRIPTION: FORTRAN IV is a superset of the ANSI FORTRAN IV language. Some of its features are: fast compile time, optimized output for fast execution, very efficient code generation, and direct access I/O. Also: in-line code generation, memory-supported multiple virtual arrays, additional compiler optimization algorithms, and FORTRAN-IV-PLUS language extensions.

Option Number	Distribution Medium	Support Category
QP230-AD	Magtape (9-tr)	B
QP230-AE	DECpack (RK05)	B
QP230-AM	Magtape (1600 bpi 9-tr)	B
QP230-AQ	DECpack (RL01)	B
QP230-AT	DECpack (RK06)	B
QP230-AV	DECpack (RK07)	B

(QP100) FORTRAN IV-PLUS

DESCRIPTION: The FORTRAN IV-PLUS compiler produces direct PDP-11 machine code optimized for execution time efficiency on a PDP-11 with floating point processor. It is a superset of ANSI standard FORTRAN and features a virtual memory compilation technique that allows large FORTRAN programs to be compiled in a relatively small user partition.
This language can be supported by any RSX-11M system running on a hardware configuration with a floating point unit or a parallel floating point processor.

Option Number	Distribution Medium	Support Category
QP100-AD	Magtape (9-tr)	A
QP100-AE	DECpack (RK05)	A
QP100-AM	Magtape (1600 bpi 9-tr)	A
QP100-AQ	DECpack (RL01)	A
QP100-AT	DECpack (RK06)	A
QP100-AV	DECpack (RK07)	A

(QJD68) RSX-11M/2780

DESCRIPTION: RSX-11M/2780 runs as a privileged task under a suitably equipped RSX-11M system, providing emulation of an IBM 2780 remote batch terminal. It will support transmission and reception from/to card reader and line printer, and/or mass storage devices. RSX-11M/2780 will transmit files stored on any input medium and store files on any output medium accessible through RSX-11M Files Control System (FCS) except DECtape.

Option Number	Distribution Medium	Support Category
QJD68-AD	Magtape (9-tr)	A
QJD68-AE	Disk Cartridge (RK05)	A
QJD68-AM	Magtape (1600 bpi 9-tr)	A
QJD68-AQ	DECpack (RL01)	A
QJD68-AT	Disk Cartridge (RK06)	A
QJD68-AV	DECpack (RK07)	A

(QP376) DBMS-11/RSX-11M

DESCRIPTION: DBMS-11/RSX-11M is an implementation of CODASYL Specified Data Base facility. It provides data base management facilities for PDP-11 COBOL and FORTRAN programs and any other host language which supports a CALL statement such as BASIC-11/IAS-RSX, and MACRO-11. DBMS-11 provides separate language facilities for the description of data and the manipulation of data. This separation of data description provides for data independance and the integration of all data and data relations into a data base which is common to all applications programs sharing the data.
This software can be supported by any RSX-11M system with at least 256K bytes of memory, line printer, magnetic tape subsystem, and sufficient mass storage for the data base.

Option Number	Distribution Medium	Support Category
QP376-AD	Magtape (9-tr)	A
QP376-AM	Magtape (1600 bpi 9-tr)	A
QP376-AT	Disk Cartridge (RK06)	A

(QP240) BASIC-11/IAS-RSX

DESCRIPTION: BASIC 11/IAS-RSX is an incremental, interactive, interpretive compiler. Its features include strings, chaining, overlay support, virtual memory (direct access) files, real-time support and a "CALL" statement for assembly language routine interfacing.

Option Number	Distribution Medium	Support Category
QP240-AD	Magtape (9-tr)	B
QP240-AE	DECpack (RK05)	B
QP240-AM	Magtape (1600 bpi 9-tr)	B
QP240-AQ	DECpack (RL01)	B
QP240-AT	DECpack (RK06)	B
QP240-AV	DECpack (RK07)	B

(QJ918) PDP-11 BASIC-PLUS-2

DESCRIPTION: BASIC-PLUS-2 is an outgrowth of the Dartmouth BASIC language. In addition to the elementary BASIC statements, BASIC-PLUS-2 features a number of powerful enhancements which allows the user to create programs which are more complex and more efficient than those written with BASIC.

Option Number	Distribution Medium	Support Category
QJ918-AD	Magtape (9-tr)	A
QJ918-AE	DECpack (RK05)	A
QJ918-AM	Magtape (1600 bpi 9-tr)	A
QJ918-AQ	DECpack (RL01)	A
QJ918-AT	DECpack (RK06)	A
QJ918-AV	DECpack (RK07)	A

(QP012) PDP-11 COBOL

DESCRIPTION: PDP-11 COBOL-11 is a precise, well-defined language processor for business data processing. It is a mature compiler that conforms to the 1974 ANSI specification.

Option Number	Distribution Medium	Support Category
QP012-AD	Magtape (9-tr)	A
QP012-AE	DECpack (RK05)	A
QP012-AM	Magtape (1600 bpi 9-tr)	A
QP012-AQ	DECpack (RL01)	A
QP012-AT	DECpack (RK06)	A
QP012-AV	DECpack (RK07)	A

(QP066) CORAL 66

DESCRIPTION: CORAL 66 is a high-level block-structured programming language. It is the standard general purpose language prescribed by the British Government for real-time and process control applications. This language is designed to replace assembly level programming in modern industrial and commercial applications. It is generally used for long-life products where ease of maintenance and flexibility are required.

The PDP-11 CORAL 66 compiler operates under the RSX-11M operating system. It features: BYTE, LONG (32-bit integer) and DOUBLE (64-bit floating point) numeric types; re-entrant code at the procedure level; executable code generation; switchable option to select target PDP-11 computer instruction sets, optimized code generation; bounds-checking array-type variables; and conditional compilation of defined parts of the source code.

Option Number	Distribution Medium	Support Category
QP066-AD	Magtape (9-tr)	A
QP066-AE	DECpack (RK05)	A
QP066-AM	Magtape (1600 bpi 9-tr)	A
QP066-AQ	DECpack (RL01)	A
QP066-AT	DECpack (RK06)	A
QP066-AV	DECpack (RK07)	A

(QJ747) FORTRAN Graphics Package

DESCRIPTION: The FORTRAN Graphics Package is a collection of FORTRAN-callable routines for users of FORTRAN on RSX-11M operating systems who wish to use the graphics capabilities of the VT11 or VS60 display processors. The package includes DECgraphic-11 routines for the VT11 and VS60 display processors.

The FORTRAN Graphics Package can be supported by any valid RSX-11M operating system configuration supporting either FORTRAN IV/IAS-RSX or FORTRAN IV-PLUS and which includes 32K bytes of memory.

The user must have RSX-11M, and either FORTRAN IV/IAS-RSX or FORTRAN IV-PLUS.

Option Number	Distribution Medium	Support Category
QJ747-XD	Magtape (9-tr)	B
QJ747-XE	DECpack (RK05)	B
QJ747-XM	Magtape (1600 bpi 9-tr)	B
QJ747-XQ	DECpack (RL01)	B
QJ747-XT	DECpack (RK06)	B

(QJ962) SSP-11 SCIENTIFIC SUBROUTINE PACKAGE

DESCRIPTION: The Scientific Subroutine Package is a collection of over one hundred FORTRAN subroutines which provide the user with a large cross-section of those mathematical and statistical routines commonly required in scientific programming. Software components include FORTRAN-callable subroutines supplied in source form.

The Scientific Subroutine Package can be supported by any RSX-11M configuration with FORTRAN IV or FORTRAN IV-PLUS and peripherals matching one of the distribution media listed below.

Option Number	Distribution Medium	Support Category
QJ962-AD	Magtape (9-tr)	B
QJ962-AE	DECpack (RK05)	B
QJ962-AM	Magtape (1600 bpi 9-tr)	B
QJ962-AQ	DECpack (RL01)	B
QJ962-AT	DECpack (RK06)	B
QJ962-AY	Floppy Disk (RX01)	B

(QP901) RMS-11K

DESCRIPTION: RMS-11K provides keyed access record management services for the RSX-11M operating system. RMS-11K comprises a set of run-time service routines and utility programs that enable keyed access data files to be defined, populated, updated, and maintained on direct access storage devices. The RMS-11K run-time service routines provide an interface between PDP-11 multi-programming operating systems and user developed applications programs.

Option Number	Distribution Medium	Support Category
QP901-AD	Magtape (9-tr)	A
QP901-AE	DECpack (RK05)	A
QP901-AM	Magtape (1600 bpi 9-tr)	A
QP901-AQ	DECpack (RL01)	A
QP901-AT	DECpack (RK06)	A
QP901-AV	DECpack (RK07)	A

(QP301) DATATRIEVE-11/RSX-11M

DESCRIPTION: DATATRIEVE-11 is an interactive query, report, and data maintenance system designed for unsophisticated computer users. DATATRIEVE-11 includes the RMS-11K software and utilizes the RMS-11K record management services to access data contained in files of sequential, indexed, or relative organization. It also provides facilities for selective data retrieval, sorting, formatting, updating, and report generation without programming overhead.

Option Number	Distribution Medium	Support Category
QP301-AD	Magtape (9-tr)	A
QP301-AE	DECpack (RK05)	A
QP301-AM	Magtape (1600 bpi 9-tr)	A
QP301-AQ	DECpack (RL01)	A
QP301-AT	DECpack (RK06)	A
QP301-AV	DECpack (RK07)	A

(QP602) SORT-11

DESCRIPTION: SORT-11 is an independent utility that can be run under the control of the RSX-11M operating system. SORT provides four different efficient sorting procedures which are selectable by user commands. Any RMS file can be used as an input file and may be processed with a maximum of 10 sort keys.
To run SORT-11, the user must have RMS-11 or RMS-11K installed in RSX-11M.

Option Number	Distribution Medium	Support Category
QP602-AD	Magtape (9-tr)	A
QP602-AE	DECpack (RK05)	A
QP602-AM	Magtape (1600 bpi 9-tr)	A
QP602-AQ	DECpack (RL01)	A
QP602-AT	DECpack (RK06)	A
QP602-AV	DECpack (RK07)	A

(QJ684) DECnet-11M

DESCRIPTION: DECnet-11M, allows a suitably configured RSX-11M system to participate as a Phase III DECnet node in point-to-point and multipoint computer networks. DECnet-11M offers task-to-task communications, network file transfer, and network resource-sharing capabilities, using the DIGITAL Network Architecture (DNA) protocols. Adaptive routing provides the ability to transfer information efficiently between non-adjacent nodes. Access to DECnet-11M is supported for RSX-11M user programs written in MACRO-11 and FORTRAN.

Option Number	Distribution Medium	Support Category
QJ684-AD	Magtape (800 bpi 9-tr)	A
QJ684-AE	Disk Cartridge (RK05)	A
QJ684-AH	Disk Cartridge (RL02)	A
QJ684-AM	Magtape (1600 bpi 9-tr)	A
QJ684-AQ	DECpack (RL01)	A
QJ684-AT	DECpack (RK06)	A
QJ684-AV	DECpack (RK07)	A

(QJD69) RSX-11M/SNA PE

DESCRIPTION: RSX-11M/SNA Protocol Emulator provides the SNA (Systems Network Architecture) protocol emulation required for DIGITAL systems to participate in an IBM SNA environment.

Option Number	Distribution Medium	Support Category
QJD69-AD	Magtape (800 bpi 9-tr)	A
QJD69-AE	Disk Cartridge (RK05)	A
QJD69-AH	Disk Cartridge (RL02)	A
QJD69-AM	Magtape (1600 bpi 9-tr)	A
QJD69-AQ	DECpack (RL01)	A
QJD69-AT	DECpack (RK06)	A
QJD69-AV	DECpack (RK07)	A

(QJ070) MUX200/RSX

DESCRIPTION: MUX200/RSX is a PDP-11 based software package which provides communication with a host Control Data Corporation (CDC) 6000 or CYBER series computer system. MUX200/RSX greatly facilitates communications to/from the host computer system and includes the following features: enables output recieved from the host to be spooled to a line printer; allows up to 8 datasets to transmit to the host at a single command; reduces host and/or line costs by utilizing local processing power; replaces terminal with user-written tasks; and allows terminals to be detached while the software package is operating.

MUX200/RSX can be supported by any valid RSX-11M operating system which includes: at least 32K bytes of memory for a single-terminal configuration; and at least 4K bytes of memory for each additional terminal. A DU11 synchronous line interface and appropriate modem is also required.

Option Number	Distribution Medium	Support Category
QJ070-AD	Magtape (9-tr)	A
QJ070-AE	DECpack (RK05)	A
QJ070-AM	Magtape (1600 bpi 9-tr)	A
QJ070-AT	DECpack (RK06)	A

(QJD76) RSX-11M/3271 Protocol Emulator (PE)

DESCRIPTION: The RSX-11M/3271 Protocol Emulator (PE) permits applications tasks running under RSX-11M to communicate interactively with tasks in an IBM 360 or 370 system. It is a tool to aid in implementing complex applications requiring on-line information entry and retrieval, file transfer and intertask communications capabilities between IBM 360 or 370 and RSX-11M systems.

The user task in RSX-11M presents itself to the IBM system as an IBM 3277 display unit attached to an IBM 3271 control unit operating in slave mode.

The emulator operates as a device driver under RSX-11M, maintaining the synchronous line discipline on one side and interfacing with the user tasks on the other. The PE module supports up to six synchronous lines, each of which can be viewed by the 360 or 370 as a 3271 controller. The theoretical maximum number of RSX-11M user tasks that can be supported by each pseudo controller is 32. The maximum number of supported lines and user tasks is a function of application requirements and buffer constraints.

PREREQUISITE SOFTWARE: RSX-11M operating system, Version 3.1 or later.

A master/host system running one of the following operating systems and applications task interfaces or equivalent: OS, CICS/OS Standard Version 2, OS/VS1 or OS/VS2 or DOS/VS, CICS/VS, IMS/VS, Version 1.1.

Option Number	Distribution Medium	Support Category
QJD76-AD	Magtape (800 bpi 9-tr)	A
QJD76-AE	DECpack (RK05)	A
QJD76-AM	Magtape (1600 bpi 9-tr)	A
QJD76-AQ	DECpack (RL01)	A
QJD76-AT	DECpack (RK06)	A
QJD76-AV	DECpack (RK07)	A

(QJ170) UN1004/RSX

DESCRIPTION: The UN1004/RSX product is a PDP-11 based software communication emulator to a UNIVAC 1100 Series Computer System. The software operates under the RSX-11M operating system and provides remote batch terminal or remote batch entry terminal emulation capability using the UNIVAC 1004 communications protocol and the XS-3 code. This product provides support for: one synchronous line to a UNIVAC 1100 Series Computer System; line communication over switched or unswitched common carrier line interfaces; up to 4800 baud on the synchronous line interface; and one (1) on-line full duplex terminal over a single two wire or four wire synchronous line.

UN1004/RSX can be supported by any valid RSX-11M configuration with: 16K byte and 6K byte task partition space; and a DU11 synchronous line interface.

Option Number	Distribution Medium	Support Category
QJ170-AD	Magtape (9-tr)	A
QJ170-AE	DECpack (RK05)	A
QJ170-AM	Magtape (1600 bpi 9-tr)	A
QJ170-AT	DECpack (RK06	A

(QJ733) COMM IOP-DZ for RSX-11M

DESCRIPTION: The COMM IOP-DZ is an intelligent direct memory access (DMA) controller for asynchronous terminal communications lines. The COMM IOP-DZ performs DMA message assembly on reception and disassembly on transmission. The COMM IOP-DZ relieves the PDP-11 central processor of many of the tasks associated with handling asynchronous terminal lines. The COMM IOP-DZ software consists of a KMC11-A microprogram and a microprogram loader. The loader runs as a privileged task under the RSX-11M operating system.

In addition to the buffer descriptor lists, COMM IOP-DZ also uses 128-byte Functional Mode Control Tables defined by the driver in main memory space. These tables enable the driver to control how the COMM IOP-DZ processes any given input character. As many as eight Functional Mode Control Tables can be assigned to a given line, enabling the COMM IOP-DZ to recognize and process multiple-character sequences. Tables can be shared by multiple lines.

MINIMUM HARDWARE REQUIRED: Any PDP-11 UNIBUS processor with: sufficient available main memory for the user-written driver and buffers during system operation, and for the COMM IOP-DZ microprogram loader at system startup, a KMC11-A auxiliary processor, a DZ11 asynchronous line multiplexer.A valid RSX-11M operating system configuration is required for executing the COMM IOP-DZ microprogram loader.

Option Number	Distribution Medium	Support Category
QJ733-CD	Magtape (9-tr)	C
QJ733-CE	DECpack (RK05)	C
QJ733-CT	DECpack (RK06)	C
QJ733-CY	Floppy (RX01)	C

(QJ734) COMM IOP-DUP for RSX-11M

DESCRIPTION: The COMM IOP-DUP is an intelligent direct memory access (DMA) controller for synchronous communications lines. The COMM IOP-DUP software consists of a KMC11-A microprogram and a microprogram loader. The loader runs as a privileged task under the RSX-11M operating system.

Under the direction of a user-written driver executing in the PDP-11 processor, the KMC11 microprogram can control multiple DUP11 synchronous communication lines connected to the PDP-11 UNIBUS. When the system starts up, the COMM IOP-DUP loader transfers the microprogram to the KMC11. It is then the driver's responsibility to initialize the microprogram and identify the line addresses, line characteristics, and the I/O buffers that the microprogram is to use.

The driver is responsible for half-duplex and multidrop line control, as well as header formatting and message sequencing, acknowledgement, and retransmission.

MINIMUM HARDWARE REQUIRED: A valid RSX-11M operating system configuration is required for executing the COMM IOP-DUP microprogram loader.

Option Number	Distribution Medium	Support Category
QJ734-CD	Magtape (9-tr)	C
QJ734-CE	DECpack (RK05)	C
QJ734-CT	DECpack (RK06)	C
QJ734-CY	Floppy (RX01)	C

(QJS60) RJE/HASP

DESCRIPTION: RJE/HASP operates as a privileged non-check pointable task performing standard IBM HASP Remote Job Entry Work-station functions under the RSX-11M, RSX-11D, and IAS operating systems. RJE/HASP functions are executed concurrently with all other RSX-11/IAS operations.

Communications line control is performed directly by the RJE/HASP task. Concurrent use of the communications device by other RSX-11/IAS tasks is precluded. Any device accessible through the standard file control system or through input/output requests can be used as a source or destination for a file on an input or output data stream. The RJE/HASP task controls these devices through the use of file system calls and input/output requests. A common area is used for passing data to and from the disk. Any non-file structured device (i.e., card reader, punch, line printer) is attached by the RJE/HASP task during its use.

PREREQUISITE SOFTWARE: One of the following operating systems: RSX-11M, Version 2 or later, RSX-11D, Version 6B or later, IAS, Version 1.1 or later.

Option Number	Distribution Medium	Support Category
QJS60-XC	DECtape	A
QJS60-XD	Magtape (9-tr)	A
QJS60-XE	DECpack (RK05)	A
QJS60-XT	DECpack (RK06)	A
QJS60-XY	Floppy Disk (RX01)	A

(QJ633) KMC11 TOOLS

DESCRIPTION: KMC11 TOOLS enables a programmer to assemble, load, and debug microprograms for the KMC11-A auxiliary processor. The KMC11 TOOLS software operates under the RSX-11M, RSX-11D and IAS operating systems.

MINIMUM HARDWARE REQUIRED: Any valid RSX-11M, RSX-11D, or IAS operating system configuration that includes a KMC11-A. A console switch register is required, so the KY11-LB programmers' console is required with the 11/04 or 11/34 CPU.

PREREQUISITE SOFTWARE: RSX-11M Version 3.0 or later, RSX-11D Version 6.2 or later, IAS Version 1.1 or later.

Option Number	Distribution Medium	Support Category
QJ633-YD	Magtape (800 bpi 9-tr)	C
QJ633-YE	DECpack (RK05)	C
QJ633-YM	Magtape (1600 bpi 9-tr)	C
QJ633-YY	Floppy (RX01)	C

RSX-11M-PLUS SYSTEM SOFTWARE

(QR501) RSX-11M-PLUS OPERATING SYSTEM

DESCRIPTION: RSX-11M-PLUS is a disk-based, priority-structured, event-driven operating system. It is an extension to the RSX-11M operating system specially designed to maximize performance on PDP-11/44 and PDP-11/70 processors. Memory sizes from 256K bytes up to 3840K bytes are supported. Memory is logically divided into partitions in which tasks are loaded and executed. The system controls the placement of tasks within a partition and automatic memory compaction minimizes memory fragmentation within a partition. Real-time interrupt response is provided by the system's task scheduling mechanism, which recognizes 250 software priority levels. The user-specified task priority determines the task's eligibility to execute. A task may be fixed in a partition to ensure immediate execution when activated, or it can reside on disk while it is dormant, making memory available to other tasks. Task checkpointing enables tasks to be displaced from memory to enable higher priority, non-resident tasks to execute. RSX-11M-PLUS offers complete program development facilities as well as a real-time response run-time system. Program development, real-time tasks, and batch streams can execute concurrently. The system's software priority levels enable the user to compile/assemble, debug, install and execute tasks, and run batch streams without significantly affecting real-time response. A multi-user program development facility is provided. Both the traditional MCR command interface and the easy-to-use Digital Command Language (DCL) are supported. LOGIN/LOGOUT with passwords, device access protection, a round-robin scheduler (running under the real-time executive), and concurrent execution of equal priority tasks via executive level swapping provide a timesharing environment. In addition, accounting information is logged to a disk file, recording per user connect time, CPU time, and pages printed.

Option Number	Distribution Medium	Support Category	System Disk Type
QR501-AD	Magtape (800 bpi 9-tr)	A	RM03
QR501-AM	Magtape (1600 bpi 9-tr)	A	RM03
QR502-AD	Magtape (800 bpi 9-tr)	A	RP04/05/06
QR502-AM	Magtape (1600 bpi 9-tr)	A	RP04/05/06

UPGRADE OPTIONS

Option Number	Distribution Medium	Support Category	System Disk Type
QR511-AD	Magtape (800 bpi 9-tr)	A	RM03
QR512-AD	Magtape (800 bpi 9-tr)	A	RP04/05/06
QR500-DZ	Single-use license only. (Available only after the purchase of at least one supported license.)		
QR520-FR	Utilities listings on Microfiche.		

Additional Software for RSX-11M-PLUS Systems

(QP301) DATATRIEVE-11/RSX-11M

DESCRIPTION: DATATRIEVE-11 is an interactive query, report, and data maintenance system designed for unsophisticated computer users. DATATRIEVE-11 includes the RMS-11K software and utilizes the RMS-11K record management services to access data contained in files of sequential, indexed, or relative organization. It also provides facilities for selective data retrieval, sorting, formatting, updating, and report generation without programming overhead.

Option Number	Distribution Medium	Support Category
QP301-AD	Magtape (9-tr)	A
QP301-AE	DECpack (RK05)	A
QP301-AM	Magtape (1600 bpi 9-tr)	A
QP301-AQ	DECpack (RL01)	A
QP301-AT	DECpack (RK06)	A
QP301-AV	DECpack (RK07)	A

(QP240) BASIC-11/IAS-RSX

DESCRIPTION: BASIC 11/IAS-RSX is an incremental, interactive, interpretive compiler. Its features include strings, chaining, overlay support, virtual memory (direct access) files, real-time support and a "CALL" statement for assembly language routine interfacing.

Option Number	Distribution Medium	Support Category
QP240-AD	Magtape (9-tr)	B
QP240-AE	DECpack (RK05)	B
QP240-AM	Magtape (1600 bpi 9-tr)	B
QP240-AQ	DECpack (RL01)	B
QP240-AT	DECpack (RK06)	B
QP240-AV	DECpack (RK07)	B

(QP230) FORTRAN IV

DESCRIPTION: FORTRAN IV is a superset of the ANSI FORTRAN IV language. Some of its features are: fast compile time, optimized output for fast execution, very efficient code generation, and direct access I/O. Also: in-line code generation, memory-supported multiple virtual arrays, additional compiler optimization algorithms, and FORTRAN-IV-PLUS language extensions.

Option Number	Distribution Medium	Support Category
QP230-AD	Magtape (9-tr)	B
QP230-AE	DECpack (RK05)	B
QP230-AM	Magtape (1600 bpi 9-tr)	B
QP230-AQ	DECpack (RL01)	B
QP230-AT	DECpack (RK06)	B
QP230-AV	DECpack (RK07)	B

(QP100) FORTRAN IV-PLUS

DESCRIPTION: The FORTRAN IV-PLUS compiler produces direct PDP-11 machine code optimized for execution time efficiency on a PDP-11 with floating point processor. It is a superset of ANSI standard FORTRAN and features a virtual memory compilation technique that allows large FORTRAN programs to be compiled in a relatively small user partition.
This language can be supported by any RSX-11M-PLUS system running on a hardware configuration with a floating point unit or a parallel floating point processor.

Option Number	Distribution Medium	Support Category
QP100-AD	Magtape (9-tr)	A
QP100-AE	DECpack (RK05)	A
QP100-AM	Magtape (1600 bpi 9-tr)	A
QP100-AQ	DECpack (RL01)	A
QP100-AT	DECpack (RK06)	A
QP100-AV	DECpack (RK07)	A

(QP012) PDP-11 COBOL

DESCRIPTION: PDP-11 COBOL-11 is a precise, well-defined language processor for business data processing. It is a mature compiler that conforms to the 1974 ANSI specification.

Option Number	Distribution Medium	Support Category
QP012-AD	Magtape (9-tr)	A
QP012-AE	DECpack (RK05)	A
QP012-AM	Magtape (1600 bpi 9-tr)	A
QP012-AQ	DECpack (RL01)	A
QP012-AT	DECpack (RK06)	A
QP012-AV	DECpack (RK07)	A

(QP602) SORT-11

DESCRIPTION: SORT-11 is an independent utility that can be run under the control of the RSX-11M operating system. SORT provides four different efficient sorting procedures which are selectable by user commands. Any RMS file can be used as an input file and may be processed with a maximum of 10 sort keys.
To run SORT-11, the user must have RMS-11 or RMS-11K installed in RSX-11M-PLUS.

Option Number	Distribution Medium	Support Category
QP602-AD	Magtape (9-tr)	A
QP602-AE	DECpack (RK05)	A
QP602-AM	Magtape (1600 bpi 9-tr)	A
QP602-AQ	DECpack (RL01)	A
QP602-AT	DECpack (RK06)	A
QP602-AV	DECpack (RK07)	A

(QR580) DECnet-11M-PLUS

DESCRIPTION: DECnet-11M-PLUS, allows a suitably configured RSX-11M-PLUS system to participate as a Phase III DECnet node in point-to-point computer networks. DECnet-11M-PLUS offers task-to-task communications, network file transfer, and network resource-sharing capabilities, using the DIGITAL Network Architecture (DNA) protocols. Adaptive routing provides the ability to transfer information efficiently between non-adjacent nodes. Access to DECnet-11M-PLUS is supported for RSX-11M-PLUS user programs written in MACRO-11 and FORTRAN.

Option Number	Distribution Medium	Support Category
QR580-AD	Magtape (800 bpi 9-tr)	A
QR580-AM	Magtape (1600 bpi 9-tr)	A

(QJ918) PDP-11 BASIC-PLUS-2

DESCRIPTION: BASIC-PLUS-2 is an outgrowth of the Dartmouth BASIC language. In addition to the elementary BASIC statements, BASIC-PLUS-2 features a number of powerful enhancements which allows the user to create programs which are more complex and more efficient than those written with BASIC.

Option Number	Distribution Medium	Support Category
QJ918-AD	Magtape (9-tr)	A
QJ918-AE	DECpack (RK05)	A
QJ918-AM	Magtape (1600 bpi 9-tr)	A
QJ918-AQ	DECpack (RL01)	A
QJ918-AT	DECpack (RK06)	A
QJ918-AV	DECpack (RK07)	A

(QJ642) RSX-11S OPERATING SYSTEM

DESCRIPTION: RSX-11S is a memory based real-time operating system designed to operate in all PDP-11 processors. The system is not dependent upon any mass storage media for execution. It is a subset of the RSX-11M disk based operating system and is fully compatible with it. The I/O driver interface is identical so that any device driver written for one system executes on the other. Any application program that executes under RSX-11S will execute under RSX-11M without change following a relink of the object program.

FEATURES: As a memory based system, RSX-11S provides a run time environmemt for execution of tasks on a memory based processor. RSX-11S supports all of the peripheral devices that are supported under RSX-11M including such hardware as floating point processors, parity memory, and memory management. The software components contained in the RSX-11S distribution kit include the Monitor Console Routine (RSX-11M Subset), on-line task loader, System Image Preservation Program, and File Control Services (FCS) for record devices directory support is not included. Transportability of tasks between the RSX-11M host and the RSX-11S target is provided via the File Exchange Utility (FLX) on the host system and the On-Line Task Loader (OTL) on the target system.

Option Number	Distribution Medium	Support Category
QJ642-AD	Magtape (9-tr)	A
QJ642-AE	DECpack (RK05)	A
QJ642-AG	DECtape II (TU58)	A
QJ642-AM	Magtape (1600 bpi 9-tr)	A
QJ642-AQ	DECpack (RL01)	A
QJ642-AT	DECpack (RK06)	A
QJ642-AV	DECpack (RK07)	A
QJ642-AY	Floppy Disk (RX01)	A

Additional Software for RSX-11S Systems

(QJ691) DECnet-11S

DESCRIPTION: DECnet-11S extends the capabilities of the RSX-11S operating system by enabling RSX-11S systems the be interconnected with other DECnet systems. DECnet-11S can be used as a component of distributed networks, resource sharing networks, and communications networks.

FEATURES: The DECnet-11S implementation of Digital Network Architecture (DNA) allows tasks written in FORTRAN and MACRO languages to exchange data with other tasks executing in the DECnet environmemt and execute programs in other systems in the network. With DECnet-11S, a local operator can send messages through the network to operators at remote terminals in the network and can request that a description of current network status, including connected nodes and their state, be printed at a local terminal. DECnet-11S also allows for down-line loading as well as sequential file access.
The features of Digital Network Architecture (DNA) which are implemented in DECnet-11S include: support of the DIGITAL Data Communications Message Protocol (DDCMP) for full and half duplex transmission in point-to-point mode, using parallel, serial asynchronous, and serial synchronous facilities; support of the Network Services Protocol (NSP) for point-to-point and multi-point network connections; and support of the Data Access Protocol (DAP) for file transfers and sequential record-level access to files and peripheral devices attached to other systems in the network. Adaptive routing provides the ability to transfer information efficiently between non-adjacent nodes.

Option Number	Distribution Medium	Support Category
QJ691-AD	Magtape (800 bpi 9-tr)	A
QJ691-AE	DECpack (RK05)	A
QJ691-AM	Magtape (1600 bpi 9-tr)	A
QJ691-AQ	DECpack (RL01)	A
QJ691-AT	DECpack (RK06)	A
QJ691-AV	DECpack (RK07)	A

RSTS/E SYSTEM SOFTWARE

(QR430) RSTS/E OPERATING SYSTEM

DESCRIPTION: RSTS/E (Resource Sharing Timesharing System/Extended) is a multiprogramming timesharing operating system that allows multiple users to process data simultaneously in either interactive or batch mode using any of several language processors. It dynamically allocates processor time, file space, and peripherals on a best fit/best throughput basis.

BASIC-PLUS, RSTS/E's implementation of the interactive BASIC language, and MACRO-11 assembly language are standard with all RSTS/E systems. RMS (Record Management Services) software is also included with RSTS/E systems and supports the relative, sequential, and single and multi-keyed indexed file organizations. RSTS/E also includes the SORT-11 file sort utility. Optional software includes the APL-11, PDP-11 COBOL, PDP-11 BASIC-PLUS-2, FORTRAN IV, FORTRAN IV-PLUS programming languages, DATATRIEVE-11 and DECnet/E utilities, and the RSTS/E-2780 protocol emulator.

Option Number	Distribution Medium	Support Category
QR430-AD	Magtape (800 bpi 9-tr)	A
QR430-AE	DECpack (RK05)	A
QR430-AM	Magtape (1600 bpi 9-tr)	A
QR430-AQ	DECpack (RL01)	A
QR430-AT	DECpack (RK06)	A
QR430-AV	DECpack (RK07)	A

Additional Software for RSTS/E Systems

(QP300) DATATRIEVE-11/RSTS/E

DESCRIPTION: DATATRIEVE-11 is an interactive query, report, and data maintenance system designed for unsophisticated computer users. The DATATRIEVE-11 package includes the RMS-11K software and utilizes the RMS-11K record management services to access data contained in files of sequential, indexed, or relative organization. It also provides facilities for selective data retrieval, sorting, formatting, updating, and report generation without programming overhead.

Option Number	Distribution Medium	Support Category
QP300-AD	Magtape (9-tr)	A
QP300-AE	Disk Cartridge (RK05)	A
QP300-AQ	Disk Cartridge (RL01)	A
QP300-AT	Disk Cartridge (RK06)	A
QP300-AV	Disk Cartridge (RK07)	A

(QP310) DATATRIEVE-11/RSTS/E UPGRADE

DESCRIPTION: This option is available as an upgrade kit for RSTS/E users who already have RMS-11K.

Option Number	Distribution Medium	Support Category
QP310-AD	Magtape (9-tr)	A
QP310-AE	Disk Cartridge (RK05)	A
QP310-AQ	Disk Cartridge (RL01)	A
QP310-AT	Disk Cartridge (RK06)	A
QP310-AV	Disk Cartridge (RK07)	A

(QJ916) PDP-11 BASIC-PLUS-2

DESCRIPTION: BASIC-PLUS-2 is an outgrowth of the Dartmouth BASIC language. In addition to the elementary BASIC statements, BASIC-PLUS-2 features a number of powerful enhancements which allows the user to create programs which are more complex and more efficient than those written with BASIC.

Option Number	Distribution Medium	Support Category
QJ916-AD	Magtape (800 bpi 9-tr)	A
QJ916-AE	Disk Cartridge (RK05)	A
QJ916-AM	Magtape (1600 bpi 9-tr)	A
QJ916-AQ	Disk Cartridge (RL01)	A
QJ916-AT	Disk Cartridge (RK06)	A
QJ916-AV	Disk Cartridge (RK07)	A

(QP011) PDP-11 COBOL

DESCRIPTION: PDP-11 COBOL is a precise, well-defined language processor for business data processing. It is a mature compiler that conforms to the 1974 ANSI specification.

Option Number	Distribution Medium	Support Category
QP011-AD	Magtape (9-tr)	A
QP011-AE	Disk Cartridge (RK05)	A
QP011-AQ	Disk Cartridge (RL01)	A
QP011-AT	Disk Cartridge (RK06)	A
QP011-AV	Disk Cartridge (RK07)	A

(QJ906) APL-11

DESCRIPTION: APL (A Programming Language) is a mathematically-structured programming language used in science, engineering, education, and business. Using APL-11, variables can be examined and changed; statements can be altered without recompilation; and program action can be readily traced. Features of APL-11 include: dynamically variable user's workspace size; chaining of APL programs to previously prepared run-time programs; multiple statement lines; standard PDP-11 file naming formats; and extended single operators which allow the user to fully evaluate character strings and write user-defined functions to perform output formatting and function editing.

Option Number	Distribution Medium	Support Category
QJ906-CD	Magtape (9-tr)	C
QJ906-CE	Disk Cartridge (RK05)	C
QJ906-CQ	Disk Cartridge (RL01)	C
QJ906-CT	Disk Cartridge (RK06)	C
QJ906-CV	Disk Cartridge (RK07)	C

(QR435) FORTRAN IV/RSTS/E

DESCRIPTION: FORTRAN IV/RSTS/E is an extended FORTRAN implementation based on the 1966 ANSI standard. It is a fast one pass optimizing compiler with features that include: common subexpression elimination; "peephole" local code tailoring; away vectoring; and in-line code generation for integer and logical operations.

Option Number	Distribution Medium	Support Category
QR435-AD	Magtape (9-tr)	B
QR435-AE	Disk Cartridge (RK05)	B
QR435-AQ	Disk Cartridge (RL01)	B
QR435-AT	Disk Cartridge (RK06)	B
QR435-AV	Disk Cartridge (RK07)	B

(QPD10) RSTS/E-2780

DESCRIPTION: RSTS/E-2780 Emulator runs as a user job under a suitably equipped RSTS/E or CTS-500 system, providing emulation of an IBM 2780 Remote Batch Terminal. RSTS/E-2780 will support transmission and reception from/to card reader and line printer, and/or mass storage devices. RSTS/E-2780 transmits files stored on any medium supported by the host operating system. It stores files on any output medium supported by RSTS/E except DECtape.

Option Number	Distribution Medium	Support Category
QPD10-AD	Magtape (9-tr)	A
QPD10-AE	Disk Cartridge (RK05)	A
QPD10-AQ	Disk Cartridge (RL01)	A
QPD10-AT	Disk Cartridge (RK06)	A
QPD10-AV	Disk Cartridge (RK07)	A
QPD10-AY	Floppy Disk (RX01)	A

(QP690) DECnet/E

DESCRIPTION: DECnet/E allows a suitably configured RSTS/E system to participate as a Phase II DECnet node in point-to-point computer networks. DECnet/E offers task-to-task communications and network file transfer capabilities using the DIGITAL Network Architecture Protocols. DECnet/E communicates with adjacent nodes over synchronous communnication lines interfaced only with DMC11 microprogrammed controllers.

Option Number	Distribution Medium	Support Category
QP690-AD	Magtape (9-tr)	A
QP690-AE	Disk Cartridge (RK05)	A
QP690-AQ	Disk Cartridge (RL01)	A
QP690-AT	Disk Cartridge (RK06)	A
QP690-AV	Disk Cartridge (RK07)	A

IAS SYSTEM SOFTWARE

(QR330) IAS OPERATING SYSTEM

DESCRIPTION: IAS is a complete, general-purpose operating system for the PDP-11/34 thru PDP-11/70 computers. IAS provides a *multi-function* processing environment which enables real-time applications to execute concurrently with timeshared multi-user interactive and batch processing applications.

FEATURES: The major components of the IAS operating system are the multiprogramming executive with real-time and time-sharing scheduling, the Files-11 comprehensive file system, interactive application program development, extensive system management facilities, and dynamic memory allocation.

The recommended CPU and amount of memory required is dependent on the operating mode selected (See SPD.)

As options, the system can support FORTRAN IV, FORTRAN IV-PLUS, BASIC, BASIC-PLUS-2, CORAL, and COBOL language processors, 2780, MUX200, and UN1004 RJE.

Option Number	Distribution Medium	Support Category
QR330-AD	Magtape (9-tr)	A
QR330-AE	DECpack (RK05)	A
QR330-AT	DECpack (RK06)	A
QR330-AQ	DECpack (RL01)	A

Additional Software for IAS Systems

(QP230) FORTRAN IV

DESCRIPTION: FORTRAN IV is an extended superset of the ANSI FORTRAN IV language. Its features include: fast compile time, optimized output for fast execution, very efficient code generation, and direct access I/O. Other features include in-line code generation, memory-supported multiple virtual arrays, additional compiler optimization algorithms, and FORTRAN-IV-PLUS language extensions.

Option Number	Distribution Medium	Support Category
QP230-AD	Magtape (9-tr)	B
QP230-AE	DECpack (RK05)	B
QP230-AM	Magtape (1600 bpi 9-tr)	B
QP230-AQ	DECpack (RL01)	B
QP230-AT	DECpack (RK06)	B
QP230-AV	DECpack (RK07)	B

(QP100) FORTRAN IV-PLUS

DESCRIPTION: The FORTRAN IV-PLUS compiler produces direct PDP-11 machine code optimized for execution time efficiency on a PDP-11 with floating point processor. It is a superset of ANSI standard FORTRAN and features a virtual memory compilation technique that allows large FORTRAN programs to be compiled in a relatively small user partition.
This language can be supported by any IAS system with a floating point processor.

Option Number	Distribution Medium	Support Category
QP100-AD	Magtape (9-tr)	A
QP100-AE	DECpack (RK05)	A
QP100-AM	Magtape (1600 bpi 9-tr)	A
QP100-AQ	DECpack (RL01)	A
QP100-AT	DECpack (RK06)	A
QP100-AV	DECpack (RK07)	A

(QP240) BASIC-11/IAS-RSX

DESCRIPTION: BASIC 11 is a timeshared BASIC implemented as an incremental compiler. Features include strings, chaining, overlay support, virtual memory (direct access) files, real-time support and a "CALL" statement for assembly language routine interfacing.
This language can be supported by any IAS system with an additional 30K byte partition.

Option Number	Distribution Medium	Support Category
QP240-AD	Magtape (9-tr)	B
QP240-AE	DECpack (RK05)	B
QP240-AM	Magtape (1600 bpi 9-tr)	B
QP240-AQ	DECpack (RL01)	B
QP240-AT	DECpack (RK06)	B
QP240-AV	DECpack (RK07)	B

(QJ919) PDP-11 BASIC-PLUS-2

DESCRIPTION: BASIC-PLUS-2 is a superset of the RSTS/E BASIC-PLUS, BASIC-11/IAS-RSX, and Dartmouth BASIC languages. It includes CALL statements, COM or COMMON statements, record I/O, and interactive debugging.
This language can be supported by any valid IAS configuration with at least 48K bytes of memory in addition to the minimum required by the operating system.

Option Number	Distribution Medium	Support Category
QJ919-AD	Magtape (9-tr)	A
QJ919-AE	DECpack (RK05)	A
QJ919-AT	DECpack (RK06)	A

(QP013) PDP-11 COBOL

DESCRIPTION: PDP-11 COBOL-11 is a precise, well-defined language processor for business data processing. It is a mature compiler that conforms to the 1974 ANSI specification.
This language can be supported by any IAS system that includes an LP11 series line printer and which is capable of supporting a minimum COBOL partition of 56K bytes. Also at least 3,000 free blocks of on line disk storage on the public disk structure.

Option Number	Distribution Medium	Support Category
QP013-AD	Magtape (9-tr)	A
QP013-AE	DECpack (RK05)	A
QP013-AT	DECpack (RK06)	A

(QP066) CORAL 66

DESCRIPTION: CORAL 66 is a high-level block-structured programming language. It is the standard general purpose language prescribed by the British Government for real-time and process control applications. This language is designed to replace assembly level programming in modern industrial and commercial applications. It is used for long-life products where ease of maintenance and flexibility are required.
The PDP-11 CORAL 66 compiler operates under the IAS operating system and provides: BYTE, LONG (32 bit integer) and DOUBLE (64 bit floating point) numeric types; re-entrant code at the procedure level; executable generated code; switchable option to select target PDP-11 computer instruction sets, optimize generated code, and check the bounds of array-type variables; and conditional compilation of defined parts of source code.
CORAL 66 can be supported by any valid IAS operating system configuration which includes: KT11 Memory Management or equivalent; KE11-E Extended Instruction Set or equivalent; a 9-track magnetic tape system, an RK11 disk cartridge system, or an RK611 disk cartridge system; a 48K byte main memory partition; and FP11 Floating Point Processor.

Option Number	Distribution Medium	Support Category
QP066-AD	Magtape (9-tr)	A
QP066-AE	DECpack (RK05)	A
QP066-AM	Magtape (1600 bpi 9-tr)	A
QP066-AQ	DECpack (RL01)	A
QP066-AT	DECpack (RK06)	A
QP066-AV	DECpack (RK07)	A

(QJ747) FORTRAN Graphics Package

DESCRIPTION: The FORTRAN Graphics Package is a collection of FORTRAN-callable routines for users of FORTRAN on RT-11, RSX-11M, or IAS operating systems who wish to use the graphics capabilities of the VT55 terminal and the VT11 or VS60 display processors. The package includes two sets of routines: a PLOT55 routine for the VT55 graphics terminal, and DECgraphic-11 routines for the VT11 and VS60 display processors.

The FORTRAN Graphics Package can be supported by any valid RSX-11M operating system configuration supporting either FORTRAN IV/IAS-RSX or FORTRAN IV-PLUS and which includes 32K bytes of memory.

The user must have RSX-11M, and either FORTRAN IV/IAS-RSX or FORTRAN IV-PLUS.

Option Number	Distribution Medium	Support Category
QJ747-XD	Magtape (9-tr)	B
QJ747-XE	DECpack (RK05)	B
QJ747-XQ	DECpack (RL01)	B
QJ747-XT	DECpack (RK06)	B

(QP902) RMS-11K

DESCRIPTION: RMS-11K provides keyed access record management services for IAS. RMS-11K is comprised of a set of run-time service routines and utility programs that enable keyed access data files to be defined, populated and maintained on direct access storage devices. The RMS-11K run-time service routines provide an interface between PDP-11 multi-programmed operating system and user developed applications programs.

RMS-11K can be supported by any IAS system with memory management that meets the minimum memory requirements for the operating system and optional language processors (BASIC-PLUS-2, COBOL, or MACRO-11), plus an additional 8K bytes (overlaid) or 24K bytes (not overlaid).

Option Number	Distribution Medium	Support Category
QP902-AD	Magtape (9-tr)	A
QP902-AE	DECpack (RK05)	A
QP902-AT	DECpack (RK06)	A

(QP302) DATATRIEVE-11/IAS

DESCRIPTION: DATATRIEVE-11 is an interactive query, report, and data maintenance system designed for unsophisticated computer users. The DATATRIEVE-11 package includes RMS-11K software. DATATRIEVE-11 utilizes the RMS-11K record management services to access data contained in files of sequential, indexed, or relative organization. It also provides facilities for selective data retrieval, sorting, formatting, updating, and report generation without the need for programming overhead.

Option Number	Distribution Medium	Support Category
QP302-AD	Magtape (9-tr)	A
QP302-AE	DECpack (RK05)	A
QP302-AT	DECpack (RK06)	A

(QP375) DBMS-11

DESCRIPTION: DBMS-11 is an implementation of the CODASYL Specified Data Base facility. It is designed to provide data base management facilities for PDP-11 COBOL programs and any other host language which supports a CALL statement such as FORTRAN IV, FORTRAN IV-PLUS, IAS-RSX and BASIC-11/IAS-RSX, and MACRO-11. DBMS-11 provides separate language facilities for the description of data and the manipulation of data. This separation of data description provides for the integration of all data and data relations into a data base which is common to all applications programs sharing the data.

DBMS-11 can be supported by any IAS system with at least 256K bytes of memory, line printer, magnetic tape subsystem, and sufficient mass storage for the user data base.

Option Number	Distribution Medium	Support Category
QP375-AD	Magtape (9-tr)	A

(QP602) SORT-11

DESCRIPTION: SORT-11 is an independent utility that can be run under the control of the IAS operating system. SORT provides four different efficient sorting procedures, which are selectable by user commands. Any RMS file can be taken as input and will be produced as a reordered output file. Files stored in RMS-11 format may be processed with up to 10 sort keys.

Option Number	Distribution Medium	Support Category
QP602-AD	Magtape (9-tr)	A
QP602-AE	DECpack (RK05)	A
QP602-AM	Magtape (1600 bpi 9-tr)	A
QP602-AQ	DECpack (RL01)	A
QP602-AT	DECpack (RK06)	A
QP602-AV	DECpack (RK07)	A

(QR680) DECnet-IAS

DESCRIPTION: DECnet-IAS, allows a suitably configured IAS system to participate as a Phase II DECnet node in point-to-point computer networks. DECnet-IAS offers task-to-task communications, network file transfer and network resource-sharing capabilities, using the DIGITAL Network Architecture (DNA) protocols. DECnet-IAS communicates with adjacent nodes over synchronous communication lines interfaced with microprogrammed controllers. Access to DECnet-IAS is supported for IAS user programs written in MACRO-11 and FORTRAN. This option includes single-use license, binaries, documentation, and full support.

Option Number	Distribution Medium	Support Category
QR680-AD	Magtape (9-tr)	A
QR680-AE	Disk Cartridge (RK05)	A
QP680-AQ	DECpack (RL01)	A
QR680-AT	Disk Cartridge (RK06)	A

(QJ170) UN1004/IAS

DESCRIPTION: The UN1004/IAS product is a PDP-11 based software communication emulator to a UNIVAC 1100 Series Computer System. The software operates under the IAS operating system and provides remote batch terminal or remote batch entry terminal emulation capability using the UNIVAC 1004 communications protocol (RMS — 1) and the XS-3 code. This product provides support for: one synchronous line to a UNIVAC 1100 Series Computer System; line communication over switched or unswitched common carrier line interfaces; up to 4800 baud on the synchronous line interface; and one (1) on-line full duplex terminal over a single two wire or four wire synchronous line.
UN1004/IAS can be supported by any valid IAS configuration with: 16K byte Real-Time partition plus 6K byte usuage of timesharing partition; and a DU11 synchronous line interface.

Option Number	Distribution Medium	Support Category
QJ170-AD	Magtape (9-tr)	A
QJ170-AE	DECpack (RK05)	A
QJ170-AM	Magtape (1600 bpi 9-tr)	A
QJ170-AT	DECpack (RK06)	A

(QJ070) MUX200/IAS

DESCRIPTION: MUX200/IAS is a PDP-11 based software package which provides communication with a host Control Data Corporation (CDC) 6000 or CYBER series computer system. MUX200/IAS communications to/from the host computer system and includes the following features: enables output recieved from the host to be spooled to a line printer; allows up to 8 datasets to transmit to the host at a single command; reduces host and/or line costs by utilizing local processing power; replaces terminal with user-written tasks; and allows terminals to be detached while the software package is operating.

MUX200/IAS can be supported by any valid IAS operating system which includes: at least 32K bytes of memory for a single-terminal configuration; and at least 4K bytes of memory for each additional terminal. A DU11-D synchronous line interface and appropriate modem is also required.

Option Number	Distribution Medium	Support Category
QJ070-AD	Magtape (9-tr)	A
QJ070-AE	DECpack (RK05)	A
QJ070-AM	Magtape (1600 bpi 9-tr)	A
QJ070-AT	DECpack (RK06)	A

(QJ733) COMM IOP-DZ for IAS

DESCRIPTION: The COMM IOP-DZ is an intelligent direct memory access (DMA) controller for asynchronous terminal communications lines. The COMM IOP-DZ performs DMA message assembly on reception and disassembly on transmission. The COMM IOP-DZ relieves the PDP-11 central processor of many of the tasks associated with handling asynchronous terminal lines. The COMM IOP-DZ software consists of a KMC11-A microprogram and a microprogram loader. The loader runs as a privileged task under the IAS operating system.

In addition to the buffer descriptor lists, COMM IOP-DZ also uses 128-byte Functional Mode Control Tables defined by the driver in main memory space. These tables enable the driver to control how the COMM IOP-DZ processes any given input character. As many as eight Functional Mode Control Tables can be assigned to a given line, enabling the COMM IOP-DZ to recognize and process multiple-character sequences. Tables can be shared by multiple lines.

MINIMUM HARDWARE REQUIRED: Any PDP-11 UNIBUS processor with: sufficient available main memory for the user-written driver and buffers during system operation, and for the COMM IOP-DZ microprogram loader at system startup, a KMC11-A auxiliary processor, a DZ11 asynchronous line multiplexer.A valid IAS operating system configuration is required for executing the COMM IOP-DZ microprogram loader.

Option Number	Distribution Medium	Support Category
QJ733-CD	Magtape (9-tr)	C
QJ733-CE	DECpack (RK05)	C
QJ733-CT	DECpack (RK06)	C
QJ733-AY	Floppy (RX01)	C

(QJ734) COMM IOP-DUP for IAS

DESCRIPTION: The COMM IOP-DUP is an intelligent direct memory access (DMA) controller for synchronous communications lines. The COMM IOP-DUP software consists of a KMC11-A microprogram and a microprogram loader. The loader runs as a privileged task under the IAS operating system.

Under the direction of a user-written driver executing in the PDP-11 processor, the KMC11 microprogram can control multiple DUP11 synchronous communication lines connected to the PDP-11 UNIBUS. When the system starts up, the COMM IOP-DUP loader transfers the microprogram to the KMC11. It is then the driver's responsibility to initialize the microprogram and identify the line addresses, line characteristics, and the I/O buffers that the microprogram is to use.

The driver is responsible for half-duplex and multidrop line control, as well as header formatting and message sequencing, acknowledgement, and retransmission.

MINIMUM HARDWARE REQUIRED: A valid IAS operating system configuration is required for executing the COMM IOP-DUP microprogram loader.

Option Number	Distribution Medium	Support Category
QJ734-CD	Magtape (9-tr)	C
QJ734-CE	DECpack (RK05)	C
QJ734-CT	DECpack (RK06)	C
QJ734-AY	Floppy (RX01)	C

(QJS60) RJE/HASP

DESCRIPTION: RJE/HASP operates as a privileged non-check pointable task performing standard IBM HASP Remote Job Entry Work-station functions under the RSX-11M, RSX-11D, and IAS operating systems. RJE/HASP functions are executed concurrently with all other RSX-11/IAS operations.

Communications line control is performed directly by the RJE/HASP task. Concurrent use of the communications device by other RSX-11/IAS tasks is precluded. Any device accessible through the standard file control system or through input/output requests can be used as a source or destination for a file on an input or output data stream. The RJE/HASP task controls these devices through the use of file system calls and input/output requests. A common area is used for passing data to and from the disk. Any non-file structured device (i.e., card reader, punch, line printer) is attached by the RJE/HASP task during its use.

PREREQUISITE SOFTWARE: One of the following operating systems: RSX-11M, Version 2 or later, RSX-11D, Version 6B or later, IAS, Version 1.1 or later.

Option Number	Distribution Medium	Support Category
QJS60-XD	Magtape (9-tr)	A
QJS60-XE	DECpack (RK05)	A
QJS60-XT	DECpack (RK06)	A

(QJ633) KMC11 TOOLS

DESCRIPTION: KMC11 TOOLS enables a programmer to assemble, load, and debug microprograms for the KMC11-A auxiliary processor. The KMC11 TOOLS software operates under the RSX-11M, RSX-11D and IAS operating systems.

MINIMUM HARDWARE REQUIRED: Any valid RSX-11M, RSX-11D, or IAS operating system configuration that includes a KMC11-A. A console switch register is required, so the KY11-LB programmers' console is required with the 11/04 or 11/34 CPU.

PREREQUISITE SOFTWARE: RSX-11M Version 3.0 or later, RSX-11D Version 6.2 or later, IAS Version 1.1 or later.

Option Number	Distribution Medium	Support Category
QJ633-YD	Magtape (800 bpi 9-tr)	C
QJ633-YE	DECpack (RK05)	C
QJ633-YM	Magtape (1600 bpi 9-tr)	C
QJ633-YY	Floppy (RX01)	C

(QPD71) IAS/3271, Protocol Emulator (PE)

DESCRIPTION: The IAS/3271 Protocol Emulator (PE) permits applications tasks running under IAS to communicate interactively with tasks in an IBM 360 or 370 system. It is a tool to aid in implementing complex applications requiring on-line information entry and retrieval, file transfer and inter-task communications capabilities between IBM 360 or 370 and PDP-11 IAS systems. The user task in IAS presents itself to the IBM system as an IBM 3277 display unit attached to an IBM 3271 control unit operating in slave mode.

The emulator operates as a device driver under IAS, maintaining the synchronous line discipline on one side and interfacing with the user tasks on the other. The PE module supports up to six synchronous lines, each of which can be viewed by the 360 or 370 as a 3271 controller. The theoretical maximum number of IAS user tasks that can be supported by each pseudo controller is 32. The maximum number of supported lines and user tasks is a function of application requirements and buffer constraints.

PREREQUISITE SOFTWARE: IAS Operating System, Version 1.1 or later.

Option Number	Distribution Medium	Support Category
QPD71-AD	Magtape (9-tr)	A
QPD71-AE	DECpack (RK05)	A
QPD71-AT	DECpack (RK06)	A

(QRD03) IAS/2780

DESCRIPTION: The IAS/2780 runs as a privileged task under a suitably equipped IAS system (Version 2 or later), providing emulation of an IBM 2780 remote batch terminal. It will support transmission to and reception from mass storage devices such as disk and magnetic tape, transmission to line printer, and reception from card reader.

PREREQUISITE SOFTWARE: IAS Version 2.0 or later.

Option Number	Distribution Medium	Support Category
QRD03-AD	Magtape (800 bpi 9-tr)	A
QRD03-AE	DECpack (RK05)	A
QRD03-AT	DECpack (RK06)	A

VAX-11/780 SYSTEM SOFTWARE

(QE001) VAX/VMS OPERATING SYSTEM

DESCRIPTION: VAX/VMS is the general-purpose operating system for the VAX-11/780 series of systems. It provides a reliable, high-performance environment for the concurrent execution of multi-user timesharing, batch, and real-time applications written in BASIC, BLISS, COBOL, FORTRAN, PASCAL, CORAL and assembly language.

The system features virtual memory management, event-driven priority scheduling, shared memory, interprocess communication, data protection based on ownership and application groups, user privilege and resource allocation control, and an easy-to-use, easily extended command language.

Other system features include multi-job and multi-stream batch processing, tools for developing native and compatibility mode programs, extensive file and record management services, programmed system services for process and subprocess control and interprocess communication, Common Run-Time Procedure Library, and system maintenance utilities.

SOFTWARE COMPONENTS: The VAX/VMS product includes the following facilities: Operating system nucleus, including virtual memory manager, swapper, system services, and input/output device drivers, user authorization control program, job initiator and symbiont manager, account manager, and Operator Communications Manager.

Other components include error logging and print utility, DCL command interpreter, MCR command interpreter, interactive and batch editors, macro assembler, linker with cross reference, library maintenance utility, Common Run-Time Procedure Library, symbolic debugger for native programs, Record Management Services, Files-11, sort utility, and software maintenance release update utility.

Option Number	Distribution Medium	Support Category
QE001-AM	Magtape (1600 bpi 9-tr)	A
QE001-AV	DECpack (RK07)	A

Additional Software for VAX-11/780 Systems

(QE100) VAX-11 FORTRAN IV-PLUS

DESCRIPTION: VAX-11 FORTRAN IV-PLUS is an optimizing FORTRAN compiler designed to achieve high execution speed. It is based on the ANS FORTRAN X3.9-1966 standard. Its generated code takes advantage of the floating point and character instruction set and the VAX/VMS virtual memory system.
The compiler supports a number of extensions to the ANSI standard, including mixed-mode arithmetic, CHARACTER and BYTE data types, BLOCK-IF-THEN-ELSE statements, generalized DO loops, ENTRY, OPEN, CLOSE, ENCODE, DECODE, INCLUDE, PARAMETER, PROGRAM statements, 15 character variable names, upper and lower array bound declarations, alternate RETURNs, and debug statements in the source code. The generated code supports standard calls to the system services, includes symbols for use by the run-time symbolic debugger, and is shareable.

Option Number	Distribution Medium	Support Category
QE100-AY	Floppy Disk (RX01)	A

(QE102) PDP-11 BASIC-PLUS-2/VAX

DESCRIPTION: PDP-11 BASIC-PLUS-2/VAX is a superset of the RSTS/E BASIC-PLUS, BASIC-11 IAS-RSX, and Dartmouth BASIC languages. It includes CALL statements, COMMON statements, and RMS record I/O. Also included is extensive string support, a full matrix package, support for long variable names, IF, THEN, ELSE constructs, and statement modifiers: IF, WHILE, UNLESS, FOR. The BASIC-PLUS-2/VAX compiler generates compatibility mode code.
The language is supported by any valid VAX/VMS system.

Option Number	Distribution Medium	Support Category
QE102-AY	Floppy Disk (RX01)	A

(QE101) VAX-11 COBOL-74

DESCRIPTION: VAX-11 COBOL-74 is a language processor for business data processing. It is based on the ANS X3.23-1974 standard and is highly compatible with PDP-11 COBOL-74. It produces native mode code and takes advantage of the VAX/VMS virtual memory system, the packed decimal (COMP-3) and character data types.
VAX-11 COBOL-74 includes the following language elements: Level 2 Nucleus module, Level 2 Table Handling module, Level 2 Sequential I/O module, Level 2 Relative I/O module, Level 2 Indexed I/O module, Level 2 Segmentation module, Level 1 Library Module, with partial Level 2 REPLACING facility, Level 1 interprogram communication module, Cross refrence compilation listing, DISPLAY verb WITH NO ADVANCING clause, Conditional variables-Data Division level 88, Nested Conditionals

Option Number	Distribution Medium	Support Category
QE101-AY	Floppy Disk (RX01)	A

(QE106) VAX-11 BLISS-32

DESCRIPTION: BLISS-32 is a high level systems implementation language for the VAX-11/780. BLISS-32 supports development of modular software according to structured programming concepts by providing a rich and advanced set of language features for the VAX-11/780 to facilitate programming of time-critical and/or hardware-independent applications. BLISS-32 is especially intended for the development of operating systems, compilers, run-time system components, data base file systems, communications software, utilities, etc.

The user must have any valid VAX/VMS system, however, at least 512K bytes of memory is recommended.

Option Number	Distribution Medium	Support Category
QE106-AY	Floppy Disk (RX01)	A

(QE066) PDP-11 CORAL 66/VAX

DESCRIPTION: PDP-11 CORAL 66/VAX is a high level block-structured programming language. It is the standard, general-purpose language prescribed by the British Government for real-time and process control applications.
The PDP-11 CORAL 66 Object Time System (OTS) which runs in the compatibility mode under RSX-11 APPLICATION MIGRA-TION EXECUTIVE is a set of object modules that can be selectively linked with compiler-produced object modules to produce a task (program) ready for execution.
PREREQUISITE SOFTWARE: VAX/VMS Operating System, Version 1.0

Option Number	Distribution Medium	Support Category
QE066-AY	Floppy (RX01)	A

(QE070) MUX200/VAX

DESCRIPTION: MUX200/VAX is a VAX-11 based software package which provides communication with a CDC 6000, CYBER series, or other host computer systems capable of using 200 UT mode 4A communications protocol. Any VAX-11 interactive terminal may be used to control remote job entry or to communicate at command level with the host system. Input files may be sent from and output files received onto any VAX-11 supported mass storage, unit record, or terminal device.
MUX200/VAX enables several users to communicate simultaneously with a host system over a single line. The VAX/VMS system while using a single physical drop appears to the host as a number of multidrops and terminals on the circuit. The maximum number of simultaneous users supported by the MUX200/VAX system is 16.
MINIMUM HARDWARE REQUIRED: Any valid VAX/VMS configuration with a DUP11 synchronous communication interface.

Option Number	Distribution Medium	Support Category
QE070-AY	Floppy (RX01)	A

(QE110) VAX-11 PASCAL

DESCRIPTION: VAX-11 PASCAL is an extended implementation of the PASCAL language as defined in the PASCAL User Manual and Report. It takes full advantage of the VAX-11 hardware floating point and character instruction sets and the virtual memory capabilities of the VAX/VMS operating system.

VAX-11 PASCAL is a reentrant, native mode compiler particularly suited to instructional use. It is also suitable for systems programming and research applications.

PASCAL is a structured, high-level programming language that provides a modular systematic approach to computerized problem solving.

VAX-11 PASCAL has many of the features common to other languages of VAX/VMS including: separate compilation of modules, standard call interface to routines written in other languages, access to VAX/VMS system services and VAX-11 SORT utility.

PREREQUISITE SOFTWARE:
VAX/VMS operating system, Version 1.6 or later.

Option Number	Distribution Medium	Support Category
QE110-AY	Floppy (RX01)	B

(QE105) PDP-11 DATATRIEVE/VAX

DESCRIPTION: DATATRIEVE is an interactive query, report, and data maintenance system designed for unsophisticated computer users. DATATRIEVE utilizes the RMS record management services to access data contained in files of sequential, indexed, or relative organization. It also provides facilities for selective data retrieval, sorting, formatting, updating, and report generation without the need for programming overhead.

Option Number	Distribution Medium	Support Category
QE105-AY	Floppy Disk (RX01)	A

(QE107) FORTRAN-IV/VAX to RSX Cross Compiler

DESCRIPTION: FORTRAN-IV/VAX to RSX is a extended implementation of FORTRAN based on ANS FORTRAN X3.9-1966. The FORTRAN-IV compiler operates under the VAX/VMS operating system to produce code which executes on a RSX-11M or RSX-11S system, or, if properly coded, in the VAX-11/780 compatibility mode environment. The FORTRAN-IV/VAX to RSX language contains a number of extensions to the ANSI standard, including mixed-mode arithmetic, general expressions in DO loop parameters and subscripts, ENCODE, DECODE, PRINT, TYPE, ACCEPT, DEFINE FILE, and PROGRAM statements, and a number of FORTRAN IV-PLUS compatible language extensions.

Option Number	Distribution Medium	Support Category
QE107-AY	Floppy Disk (RX01)	A

(QED01) DECnet-VAX

DESCRIPTION: DECnet-VAX allows a suitably configured VAX/VMS system to participate as a Phase II DECnet node in point-to-point computer networks.

DECnet-VAX offers task-to-task communications, network file transfer, and network resource sharing capabilities using the DIGITAL Network Architecture (DNA) protocols. DECnet-VAX communicates with adjacent nodes over synchronous communication lines.

DECnet-VAX is avaiable as an enhancement to any valid VAX/VMS system with one of the following communication devices: DMC11-AR, -DA; DMC11-AL, -MD; or DMC11-AL -MA.

Option Number	Distribution Medium	Support Category
QED01-AY	Floppy Disk (RX01)	A

(QE111) VAX-11 2780/3780 Protocol Emulator

DESCRIPTION: This product emulates the synchronous line protocol used by a 2780 or 3780 Remote Batch Terminal. The emulator provides the VAX/VMS user with a mechanism for transferring files between the VAX/VMS system and another system equipped to handle 2780 or 3780 communications protocols. The remote system is functionally similar to a sequential unit record device which is a sink and a source of data.

Several data formats are supported with the use of a particular format selected via user command. Users may select various forms control translation schemes, records can be padded with spaces to card images before transmission, translation to and from EBCDIC, and BSC transparency. All file I/O is performed through the VAX/VMS record management facility. Print and punch stream recognition is implemented in such a way that the data manipulation scheme can differ with each stream.

MINIMUM HARDWARE REQUIRED: The VAX-11 2780/3780 Protocol Emulator requires a valid VAX/VMS configuration plus a DUP-11.

PREREQUISITE SOFTWARE: VAX/VMS, Version 1.5 is required to use this product.

Option Number	Distribution Medium	Support Category
QE111-AY	Floppy Disk (RX01)	A

(QE707) DX/VMS, WPS-8 to Host Software Utility

DESCRIPTION: DX/VMS is a FORTRAN IV-PLUS software package that executes on a VAX/VMS operating system. It enables a WPS-8 word processing system running WPS-8, WPS-8/78, or WPS-8/MTS software to communicate with the VAX/VMS host over an asynchronous terminal interface.

The user must have any valid VAX/VMS system supporting FORTRAN IV-PLUS that has an available local or remote serial asynchronous terminal line supported by the operating system, and 2) any valid WPS-8 or WPS-8/MTS system configuration with communication option or one WS78-CA. Each additional WPS-8 system connected to the VAX/VMS system requires its own line.

Option Number	Distribution Medium	Support Category
QE707-YM	Magtape (9-tr)	C

(QS051) Pen Plotter Utility

DESCRIPTION: A library of FORTRAN subroutines to produce graphical output on most of the CALCOMP range of Pen Plotters. Included are all the standard CALCOMP calls (LINE, SYMBOL, WHERE, etc.) and a handler for the CALCOMP 906 controller which connects to the VAX-11/780 via an EIA asynchronous line.

The user must have any valid VAX/VMS system, one line of a DZ11, and from CALCOMP, Model 906 controller PLUS any supported plotter.

Note: Customer must purchase plotter from CALCOMP and negotiate installation and maintenance directly with them.

Option Number	Distribution Medium	Support Category
QS051-YM	Magtape (1600 bpi 9-tr)	C
QS051-YY	Floppy Disk (RX01)	C

(QE050) Digitizer Utility

DESCRIPTION: A library of FORTRAN subroutines for acquiring data from the TALOS range of digitizers. Includes such single calls as fetch AREA, LENGTH, etc. in any scale of units specified by the user, and allows flexible creation of MENU areas on the Digitizer surface.

Software components include: Library of Digitizer Subroutines, and handler for TALOS model Digitizers ("Simple ONE" and "Standard ONE").

This utility is supported by any valid VAX/VMS system with one line of a DZ11, and any TALOS model Digitizer from their "Standard ONE" or "Simple ONE" ranges. Must have the RS232-C option installed plus the TALOS/DEC status modification.

Note: Customer must purchase digitizer from TALOS and negotiate installation and maintenance directly with them.

Option Number	Distribution Medium	Support Category
QE050-YY	Floppy Disk (RX01)	C

(QE053) Engineering Drawing Utilities

DESCRIPTION: A library of FORTRAN callable subroutines to provide high level control of Pen Plotters, Electrostatic Plotters and DECgraphic Display Satellites. Single calls are included to produce complex output with the minimum of applications programming effort, including routines to create circles, arcs, graph axes with labeling, dimension lines, arrowheads, etc., as well as a library of over 60 standard mathematical, logic and electronic symbols. Users may define their own symbols within 100 x 100 matrix and reference them with a unique calling number. Also included is a "SNAPSHOT" routine to produce a hard copy output from a DECgraphic display file.

The user must have any valid VAX/VMS system and any one of the following prerequisites: 1) DECgraphic FORTRAN Package (QE747), or 2) Pen Plotter Utility (QS051), or 3) Electrostatic Utility (QS052).

Option Number	Distribution Medium	Support Category
QE053-YY	Floppy Disk (RX01)	C

EXTENDED DIAGNOSTICS

(ZE014) VAX-11/780 Diagnostics Extended

DESCRIPTION: For those VAX-11/780 customers who have determined that self-maintenance is cost-effective, DIGITAL offers extensions to the standard set normally delivered with VAX/VMS. This expanded set of diagnostics contains CPU microdiagnostics and supervisor scripting, which is the ability to build a sequence of diagnostics that will operate without operator intervention.

The user must have any valid VAX/VMS system with standard diagnostic set.

Option Number	Distribution Medium	Support Category
ZE014-CY	Floppy Disk (RX01)	C

HARDWARE SYSTEMS

DIGITAL EQUIPMENT CORPORATION

TECHNICAL OEM GROUP   MAYNARD, MASSACHUSETTS 01754