

DIGITAL EQUIPMENT CORPORATION

PRICE LIST

pdp-11/40

JANUARY 1, 1973

Price List

SYSTEMS, SERVICES AND OPTIONS



digital

About this price list . . .

The first part of this price list is devoted to describing the system building blocks and the standard systems built upon them. The latter part of this price list concerns itself with the hardware and software options, maintenance and support services offered with PDP-11 systems.

All systems and options should be referred to by the exact Option Number as shown in this price list. This option number is recognized by our internal Order Processing System, and is used to expedite the handling of the many possible combinations. The standard systems offered in this price list have option numbers starting with either 11/10- or 11/40- depending on the processor included in the system.

Standard systems:

- Specify a complete, ready-to-run system
- Provide an optimum system configuration
- Allow faster deliveries
- Give you the best value for your money

For the first time . . .

On 11/40 systems *only*, we offer four terminal substitution option numbers: 11/40-LT and LU or 11/40-VT or VU (described further on page 7). All 11/40 systems (excluding the system building blocks 11/40-CA and 11/40-CB) are offered with LA30 DECwriters as the system terminal. As before, no subtractions may be made from a standard system. However, an LT33 teletype may be substituted into any standard system by ordering both the standard system option number and an appropriate terminal substitution number (either 11/40-LT or 11/40-LU). Similarly, if a VT05B Alphanumeric CRT display and keyboard is desired in an 11/40 system in lieu of the LA30, 11/40-VT or 11/40-VU can be ordered in addition to the system option number desired. An LS11 or LP11 line printer is recommended on these systems. There is no price change associated with any of the four substitution option numbers.

ORGANIZATION OF STANDARD SYSTEMS

Option Number: The left hand option number column is the Digital number for the option, assuming 115 volt, 60 cycle power. The right hand option number column is the number for the option, assuming 230 volt, 50 cycle power, if it is different. If they are the same, this column is left blank.

Purchase Price and Discount: The Purchase Price is the total dollar cost of the option. If the item is discountable, the Discount Type column indicates "1" or "2" depending on its original equipment manufacturer (OEM) discount status. (Both Type 1 and Type 2 options are discountable under quantity discount agreements.) If the option falls under the Module Sales discount agreements, the discount type is listed as "MOD." "GT" refers to the GT40 discount agreement. Non-discountable items are indicated by "NO."

Monthly Hardware Maintenance: Field Service Maintenance is the price of a standard, 1-shift maintenance contract on the option.

Resources Available: Included in the given Option Number for standard systems: the BUS LOADS (BL) *available* (before a DB11-A bus repeater is needed); AMPS at +5V. *available* (before an additional power supply is needed); SYSTEM UNIT slots (SU) *available* (before an expander box is needed); and the SMALL PERIPHERAL CONTROLLER slots (SPC) *available* (before an additional DD11 system unit is needed).

and massachusetts

pdp11/40

ADDRESS

DATA

RUN

PROCESSOR

BUS

CONSOLE

USER

VIRTUAL

DEP

LOAD
ADDRS

EXAM

CONT

ENABLE
HALT

START

2

1

0

and massachusetts

RUN

pdp11/10

PANEL LOCK

POWER

OFF

LOAD
ADDRS

EXAM

CONT

ENABLE
HALT

START

DEP

5 4 3 2 1 0

HIGH SPEED PAPER TAPE CONFIGURATIONS

Included in the following Option Number prices:

- PDP-11 System Building Block with 900 nsec. Core Memory and a Terminal
- Serial DECwriter (LA30) added to PDP-11/10 System Building Block
- Parallel DECwriter (LA30) replaces Teletype (LT33) on PDP-11/40 System Building Block
- High Speed Paper Tape Reader and Punch (PC11)
- Hardware and Software Training included on PDP-11/40 Configuration (4 credits total)

OPTION NUMBER		PRICE	MONTHLY MAINT.	DISC. TYPE	TOTAL INCLUDED MEMORY	TOTAL INCLUDED MEMORY		TU10 (7)	TU10 (9)	PC11	PR11	RS64	RS11	RK05	KW11-L	CR11	AVAILABLE			
115 V, 60 Hz	230 V, 50 Hz					LT33	LA30										AMPS +5 V	B L	S U	P C
11/10-CE	11/10-CF	14,495	125	2	8K												6.0	16	0	3
11/40-CE	11/40-CF	17,070	160	2	8K												22.4	16	4	3



DISK OPERATING SYSTEMS

The PDP-11 Disk Operating System (DOS) is a disk resident software system which enables a PDP-11 user to efficiently develop and execute his programs. During program development, the monitor serves the user by providing a simple, easy-to-use interface with program development software such as the relocating MACRO assembler, FORTRAN compiler, editor, etc. During program execution, the monitor eases the burden on the user program by providing common I/O device handling routines, loaders, operator interface, and basic resources accounting.

KEYBOARD CONTROL OF DOS

Interactive applications can be implemented using DOS under the control of the console keyboard. Thus each major command comes from an operator as it is needed.

DOS SYSTEM CONFIGURATIONS

Included in the following Option Number prices:

- PDP-11 System Building Block with 900 nsec. Core Memory and a Terminal
- Cabinets and all Mounting Hardware
- Bootstrap Loader
- Choice of Disks (Control Logic Included)
 - 64K Word Fixed Head Disk (RS64/RC11)
 - 256K Word Fixed Head Disk (RF11/RS11)
 - 1.2M Word Interchangeable Cartridge Disk (RK05/RK11)
- Choice of Tape Devices (Control Logic Included)
 - Dual Drive DECtape (TU56/TC11)
 - 7 or 9 Track Industry Standard Magnetic Tape (TU10/TM11)
 - High Speed Paper Tape Reader/Punch (PC11)
- License to use DOS Software (Binaries) (QJ220)

NOTES

- Hardware and Software Training included for PDP-11/40 Systems (4 credits total)
- Minimum 16K Core needed for FORTRAN & MACRO
- DECwriters are Serial (LA30) for PDP-11/10 Systems and Parallel (LA30) for 11/40 Configurations
- RC11/RS64 Disk System requires DECtape (TU56/TC11)

OPTION NUMBER			MONTHLY MAINT.	DISC. TYPE	TOTAL INCLUDED MEMORY												AVAILABLE				
115 V, 60 Hz	230 V, 50 Hz	PRICE				LT33	LA30	TU56	TU10 (7)	TU10 (9)	PC11	PR11	RS64	RS11	RK05	KW11-L	CR11	AMPS +5 V	B L	S U	P C
11/10-DM	11/10-DN	26,610	175	2	8K	■	■				■					6.0	14	0	3		
11/40-DM	11/40-DN	29,120	210	2	8K	■	■				■					21.7	14	4	3		
11/40-DC	11/40-DD	36,170	240	2	8K	■	■					■				21.7	14	4	3		
11/40-EK	11/40-EL	37,620	295	2	8K	■		■				■				22.9	13	4	2		
11/40-EH	11/40-EJ	37,620	295	2	8K	■			■			■				22.9	13	4	2		
11/10-EC	11/10-ED	28,795	193	2	8K	■				■		■				4.5	14	0	2		
11/40-EC	11/40-ED	31,370	228	2	8K	■				■		■				21.7	14	4	2		
11/40-DS	11/40-DT	37,570	310	2	16K	■	■						■			21.7	13	4	3		
11/40-EP	11/40-ER	39,020	365	2	16K	■		■					■			21.4	12	4	2		
11/40-EM	11/40-EN	39,020	365	2	16K	■			■				■			21.4	12	4	2		
11/10-EE	11/10-EF	30,590	263	2	16K	■				■		■				1.5	13	0	2		
11/40-EE	11/40-EF	32,770	288	2	16K	■				■		■				21.2	13	4	2		

BATCH SYSTEMS

BATCH CONTROL OF DOS

The PDP-11 Disk Operating System (DOS) can be expanded to include BATCH processing. This BATCH facility, with the help of the Batch Command Language (BCL), permits a sequence of tasks to be run in an automatic mode. All that is required to put the full power of BATCH in motion is a small card deck containing just the necessary commands for the execution of a sequence of jobs.

Typical environments requiring automatic processing include:

- Engineering and scientific calculations
- Business data processing
- Programming education
- Program development

BATCH SYSTEM CONFIGURATIONS

Included in the following Option Number prices:

- PDP-11 System Building Block with 900 nsec. Core Memory and a Terminal.
- Cabinets and all Mounting Hardware
- Bootstrap Loader
- 1.2M Word Interchangeable Cartridge Disk and Control Logic (RK05/RK11)
- 300 Card Per Minute Reader (CR11)
- Real Time Clock (Line Frequency) (KW11-L)
- Choice of Tape Devices (Control Logic Included)
 - Dual Drive DECtape (TU56/TC11)
 - 7 or 9 Track Industry Standard Magnetic Tape (TU10/TM11)
 - High Speed Paper Tape Reader/Punch (PC11)
- License to use DOS and BATCH Software Binaries (QJ250)
- Hardware and Software Training (4 credits total)

OPTION NUMBER		PRICE	MONTHLY MAINT.	DISC. TYPE	TOTAL INCLUDED MEMORY	AVAILABLE												
115 V, 60 Hz	230 V, 50 Hz					LT33	LA30	TU56	TU10 (7)	TU10 (9)	PC11	PR11	RS64	RS11	RK05	KW11-L	CR11	AMPS +5 V
11/40-PA	11/40-PB	38,000	351	2	16K	■			■			■	■	■	19.7	11	4	1
11/40-PM	11/40-PN	42,720	363	2	16K	■	■					■	■	■	21.2	11	4	2
11/40-PS	11/40-PT	44,130	416	2	16K	■		■				■	■	■	20.9	10	4	1
11/40-PP	11/40-PR	44,130	416	2	16K	■			■			■	■	■	20.9	10	4	1

SYSTEM SUBSTITUTION OPTIONS

OPTION NUMBER		DESCRIPTION
115 V, 60 Hz	230 V, 50 Hz	
11/40-LT	11/40-LU	Substitutes at no change in price an ASR-33 Teletype (LT33) and Control (DL11-A) for the standard system DECwriter (LA30-P) and Control (LC11-A). Applies only to 11/40 System Option Numbers.
11/40-VT	11/40-VU	Substitutes at no change in price an Alphanumeric CRT display and keyboard (VT05B) and Control (DL11-A) for the standard system DECwriter (LA30-P) and Control (LC11-A). Applies only to 11/40 system option numbers.

RESOURCE TIMESHARING SYSTEMS

RESOURCE TIME SHARING SYSTEM (RSTS)—BASIC-PLUS

A powerful multi-task, in-house time sharing system can support up to 16 independently controlled on-line interactive terminals. Every RSTS terminal user may have exclusive use of any peripheral on the system, use up to 8K words of memory capacity, and have the ability to open and access up to 12 data files at any one time. Data files are stored on disk units with a file capacity of up to 16M words.

RSTS uses BASIC-PLUS, a greatly enriched version of the popular time sharing language. Key features of BASIC-PLUS include character string handling capacity, extended program statement coding, print formatting, and operators to handle matrices, files and integers.

RSTS is a highly configurable and flexible system. The system can be expanded or reconfigured at any time as needs grow. Minimum systems expanded by the addition of more terminals and controllers (up to 16 users) are configured as follows:

RSTS SYSTEM CONFIGURATIONS

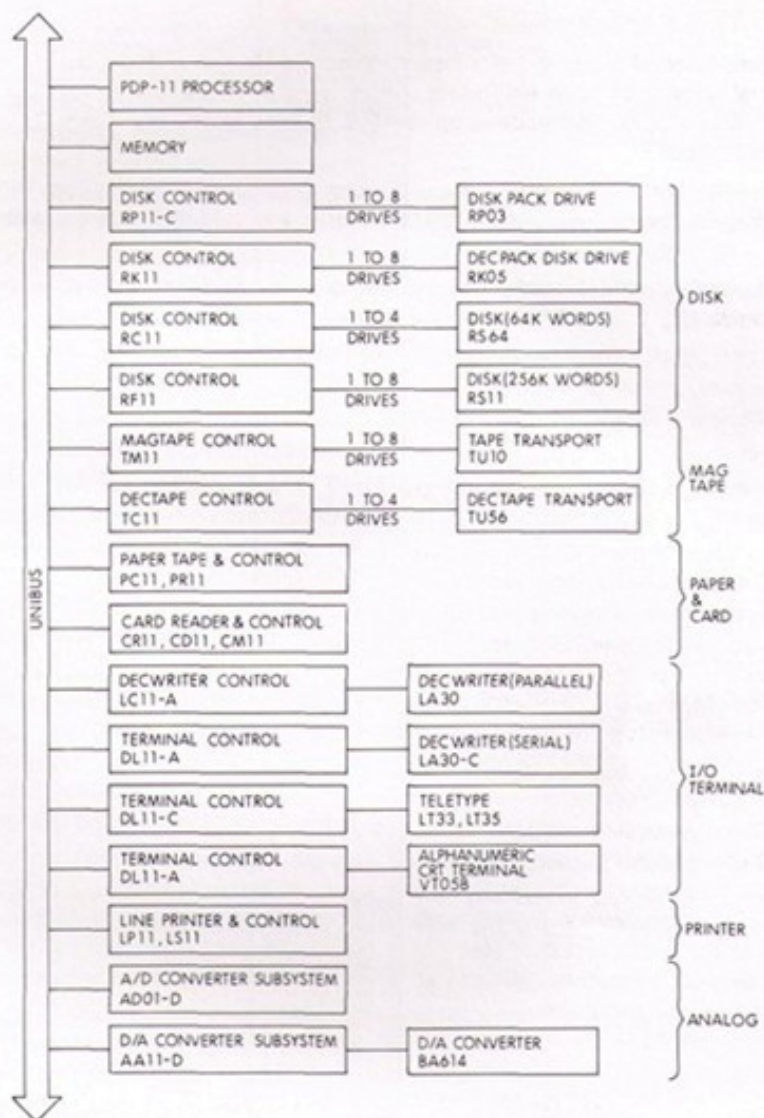
Included in the following Option Number prices:

- PDP-11 System Building Block with 900 nsec. Core Memory and a Terminal
- Real Time Clock (Line Frequency) (KW11-L)
- Cabinets and All Mounting Hardware
- Bootstrap Loader
- Choice of Disk Systems (Control Logic Included)
 - One 64K Word Fixed Head Disk (RS64/RS11) and one 1.2M Word Interchangeable Cartridge Disk (RK05/RK11)
 - One 256K Word Fixed Head Disk (RF11/RS11)
 - Two 1.2M Word Interchangeable Cartridge Disk (RK05/RK11)
- Choice of Tape Devices (Control Logic Included)
 - Dual Drive DECtape (TU56/TC11)
 - High Speed Paper Tape Reader/Punch (PC11)*
 - High Speed Paper Tape Reader (PR11)*
- License to use RSTS and DOS Software (Binaries) (QJ400)
- Hardware and Software Training (5 credits total)

* Note PC11 or PR11 needed for use on dual RK05/RK11 systems.

OPTION NUMBER															AVAILABLE						
115 V, 60 Hz	230 V, 50 Hz	PRICE	MONTHLY MAINT.	DISC. TYPE	TOTAL INCLUDED MEMORY	LT33	LA30	TU56	TU10 (7)	TU10 (9)	PC11	PR11	RS64	RS11	RK05	KW11-L	CR11	AMPS +5 V	B L	S U	P C
11/40-RK	11/40-RL	47,720	313	2	24K													20.2	11	4	3
11/40-RH	11/40-RJ	51,670	383	2	24K													20.2	10	4	3
11/40-RM	11/40-RN	45,020	421	2	24K													20.2	11	4	2
11/40-RA	11/40-RB	43,520	406	2	24K													20.2	11	4	2
11/40-RS	11/40-RT	51,270	488	2	24K													21.7	11	4	2
11/40-RP	11/40-RR	51,270	488	2	24K													21.7	11	4	2
11/40-RW	11/40-RY	49,170	368	2	24K													21.7	11	4	2
11/40-RU	11/40-RV	49,170	368	2	24K													21.7	11	4	2

SYSTEM ARCHITECTURE OF MAJOR COMPONENTS



In general, any device that interfaces to the UNIBUS™ imposes 1 bus load. The UNIBUS can handle a maximum of 20 bus loads and a total length of 50 ft. If either number is exceeded, a DB11-A UNIBUS repeater must be used.

ORGANIZATION OF OPTIONS

Option Number, Purchase Price and Discount are the same as described under Organization of Standard Systems (P. 2).

Prerequisite: Denotes highest level prerequisite required to support the option.

Field Service Maintenance: Monthly price of a standard 1-shift maintenance contract on the option.

Field Service Installation: Field installation charge for the option.

Mounting Code:

PAN	Panel Mounted (10 ¹ / ₂ "
SM PAN	Small panel mounted (5 ¹ / ₄ "
CAB	Cabinet mounted, cabinet included
FS	Free Standing
MOD	Module (CPU Mounted)
1 SU	One System Unit Slot
2 SU	Two System Unit Slots
1 SPC	One Small Peripheral Controller Slot
2 SPC	Two Small Peripheral Controller Slots
1 DF	Two Slots on DD11-B

Bus Load: The number of loads that the option puts on the UNIBUS.

AMPS @ +5 V. needed: The current (in amps) required at +5 V. by the option.

COMPUTERS AND OPTIONS

Option Number 115V, 60Hz 230V, 50Hz		Description	Prerequisite	Pur- chase Price	Discount Type	Field Main- tenance	Service Install- ation	Mount- ing Code	Bus Load	Amps @ +5V Needed
PDP-11/10										
11/10-AC	11/10-AD	KD11-B central processor with features described on page 4.	—	6,995	2	65	—	SM PAN	2	—
PDP-11/40										
11/40-CA	11/40-CB	KD11-A central processor with features described on page 4.	—	12,995	2	120	—	2 PAN	2	—
KE11-E		Signed integer, multiply and divide and long shifts.	11/40	1,200	2	10	75	MOD	—	—
KE11-F		FLOATING POINT UNIT for faster calculations. Includes: Floating Point, Multiply, Divide, Add, Subtract.	KE11-E	1,300	2	10	50	MOD	—	—
KJ11-A		Programmable Stack Limit Option—permits a soft stack limit violation.	11/40	300	2	5	50	MOD	—	—
KT11-D		Memory Management Option permits access to 124K of memory and provides protection—includes KJ11-A	11/40 *	2,300	2	20	100	MOD	—	—
EXTENDED ARITHMETIC ELEMENTS										
KE11-A		Extended Arithmetic Hardware Element; Multiply, Divide, multiple shifts, normalizes—handles signed numbers.	11/CPU	1,800	2	10	80	1 SU	1	4.0
KG11-A		Communications Arithmetic Element for rapid calculations of Cycle Redundancy Check (CRC) and Longitudinal Redundancy Check (LRC). Used to calculate the test Block Check Characters (BCC) required for synchronous communications.	11/CPU	750	2	6	60	1 SPC	1	1.5
KW11-L		Line Frequency Clock. When enabled, interrupts every 16.67 milli-seconds. (20 ms on 50 Hz.) Mounts in a dedicated cpu slot.	11/40	250	2	3	50	MOD	1	0.8
KW11-P		Programmable Real Time Clock. Program selectable interrupt rates of 100 KHz, 10 KHz, or line frequency.	11/CPU	600	2	3	50	1 SPC	1	1.0

* Note: KT11-D requires 24K minimum of DIGITAL memory.

Option Number 115V, 60Hz 230V, 50Hz		Description	Prerequisite	Pur- chase Price	Discount Type	Field Main- tenance	Service Install- ation	Mount- ing Code	Amps @ Bus Load	+5V Needed
CORE MEMORIES										
ME11-LA	ME11-LB	Memory System 16-bit Read/Write 900 nsec. core, self contained in 5-1/4" rack-mountable unit, includes power supply, back panel (wired for up to 24K), first 8K increment and UNIBUS cable. (Expandable to 24K in 8K or 12K increments <i>only</i> .)	11/CPU	5,200	2	35	150	SM PAN	1	—
MF11-LP		8K parity core memory and control with expansion capability to 24K (by addition of MM11-LP). 1 microsecond cycle time. Not compatible with BA11-ES expander box.	11/40	5,700	1	45	125	2 SU	1	3.4
MM11-LP		8K parity expander core memory. Mounts on MF11-LP. 1 microsecond cycle time.	MF11-LP	5,400	1	40	125	—	1	1.7
MF11-L		8K core memory and control with expansion capability to 24K (by addition of MM11-Ls or MM11-LKs) 900 nanosecond cycle time. Not compatible with BA11-ES expander box.	11/40	4,700	1	35	150	2 SU	1	3.4
MM11-L		8K expander core memory. Mounts on MF11-L or ME11-LA, LB. (Maximum of two MM11-Ls per MF11-L or ME11-LA, LB.) 900 nanosecond cycle time.	MF11-L ME11-LA ME11-LB	4,400	1	35	150	—	1	1.7
MM11-LK		12K expander core memory. Mounts on MF11-L or ME11-LA, LB. (Maximum of one MM11-LK per MF11-L or ME11-LA, LB.) 900 nanosecond cycle time.	MF11-L ME11-LA ME11-LB	7,100	1	55	150	—	1	3.4
MM11-S		8K Core Memory and Controller. 8192 words. 900 nanosecond cycle time. Cannot be mounted in BA11-ES Expander Box.	11/40	4,700	1	36	125	1 SU	1	3.0
DIODE MEMORIES										
M792		32 word Read-Only Diode Memory: customer programmable by the removal of selected diodes.	11/CPU	300	MOD	3	—	1 SPC	1	0.3
✓ BM792-YA		Paper tape (TTY or a High Speed Reader) Bootstrap Loader.	11/CPU	300 320	2	3	50	1 SPC	1	0.3
BM792-YB		Bulk Bootstrap Loader (Disk or DECtape).	11/CPU	300	2	3	50	1 SPC	1	0.3
BM792-YC		Card-reader Bootstrap Loader (CR11).	11/CPU	300	2	3	50	1 SPC	1	0.3
MR11-DB		Multi-device Bulk Storage Bootstrap Loader (Disks, DECtape, magtape).	11/40	500	2	5	75	2 SPC	2	0.6

Option Number 115V, 60Hz 230V, 50Hz		Description	Prerequisite	Purchase Price	Discount Type	Field Maintenance	Service Installation	Mounting Code	Bus Load	Amps @ +5V Needed
DISK CONTROLLERS										
RC11		Controller for up to four RS64 DECdisks.	11/CPU	2,450	2	20	150	—	1	—
RF11		Fixed Head Disk Controller for up to 8 RS11 disk drives. Includes cabinet.	11/CPU	5,000	2	25	220	—	1	—
RK11-CA	RK11-CB	Moving Head Disk Controller for up to 8 RK05 DECpack disk drives. Includes cabinet.	11/CPU RK05	5,900	2	40	240	—	1	—
RP11-CA	RP11-CB	Moving Head Disk Controller for up to 8 RP03 disk packs. Includes cabinet.	11/CPU	11,000	2	70	240	CAB	1	—
DISK DRIVES										
RS64-A	RS64-B	64K word DECdisk fixed head disk drive; 16 nsec/word transfer rate; 16.1 msec average access time. Expandable to 262K words. (Does not include cabinet.)	RC11	4,500	2	15	240	PAN	—	—
RS11	RS11-A	262K fixed head disk drive. 16 microsecond/word transfer rate. 17 millisecond average access time. (RS11-A has 20 microsecond/word transfer rate and 20.3 millisecond average access time.)	RF11	9,000	2	40	240	CAB	—	—
RK05-AA	RK05-BB	1.2 million word moving head DECpack drive. 11.08 microsecond/word transfer rate. 70 milliseconds average access time.	RK11	5,100	1	60	260	CAB	—	—
RP03-AS	RP03-BS	20 million word moving head disk pack drive. 7.5 microsecond/word transfer rate. 29 milliseconds average seek time.	RP11	20,000	No	150	425	FS	—	—
RK05-KA		1.2 million word cartridge for RK05 moving head disk drive.	RK05	99	No	—	—	—	—	—
MAGNETIC TAPE CONTROLLERS										
TC11		DECtape Controller for up to 4 TU56 dual DECtape transports. Includes cabinet.	11/CPU	4,000	2	12	240	CAB	1	—
TM11-A	TM11-B	Industry Compatible Tape Controller for up to 8 TU10 transports. Includes cabinet.	11/CPU	3,000	2	25	240	—	1	—
MAGNETIC TAPE TRANSPORTS										
TU56		Dual DECtape Transport.	TC11	4,700	2	30	60	—	—	—
TU10-EA	TU10-ED	First (Master) Industry Compatible 9 Channel Tape Transport. 800 BPI. 45 IPS.	TM11	6,950	2	70	400	CAB	—	—
TU10-EE	TU10-EJ	Expander (Slave) Industry Compatible 9 Channel Tape Transport. 800 BPI. 45 IPS.	TM11	6,950	2	70	400	CAB	—	—
TU10-FA	TU10-FD	First (Master) Industry Compatible 7 Channel Tape Transport. 200, 556, 800 BPI program selectable. 45 IPS.	TM11	6,950	2	70	400	CAB	—	—
TU10-FE	TU10-FJ	Expander (Slave) Industry Compatible 7 Channel Tape Transport. 200, 556, or 800 BPI program selectable. 45 IPS.	TM11	6,950	2	70	400	CAB	—	—
MAGNETIC TAPE CASSETTES										
TA11-AA	TA11-AB	Dual DEC Cassette Transport and interface logic. Rack mounted.	11/CPU	3,900	2	36	180	SM PAN	1	—
TU60-K		150' certified magnetic tape cassette.	TA11	7	No	—	—	—	—	—

Option Number 115V, 60Hz 230V, 50Hz		Description	Prerequisite	Pur- chase Price	Discount Type	Field Main- tenance	Service Install- ation	Mount- ing Code	Bus Load	Amps @ +5V Needed
LINE PRINTERS AND CONTROLLERS										
LS11-A	LS11-B	60 LPM Printer. 132 column 64 character. Includes Controller.	11/CPU	5,200	No	48	120	1 SPC/ FS	1	1.0
LP11-FA	LP11-FB	300 LPM Printer. 80 column 64 character. Includes Controller.	11/CPU	12,000	No	60	200	1 SPC/ FF	1	1.0
LP11-HA	LP11-HB	300 LPM Printer. 80 column 96 character. Includes Controller.	11/CPU	13,500	No	65	200	1 SPC/ FS	1	1.0
LP11-JA	LP11-JB	300 LPM Printer. 132 column 64 character. Includes Controller.	11/CPU	17,500	No	75	250	1 SPC/ FS	1	1.0
LP11-KA	LP11-KB	300 LPM Printer. 132 column 96 character. Includes Controller.	11/CPU	19,000	No	80	250	1 SPC/ FS	1	1.0
LP11-RA	LP11-RB	1200 LPM Printer. 132 column 64 character. Includes Controller.	11/CPU	30,000	No	135	250	1 SU/FS	1	1.0
LP11-SA	LP11-SB	800 LPM Printer. 132 column 96 character. Includes Controller.	11/CPU	33,000	No	135	250	1 SU/FS	1	1.0
CARD READERS AND CONTROLLERS										
CR11	CR11-A	300 CPM Reader for 80 column punched cards. Includes Controller.	11/CPU	4,500	No	50	240	1 SPC/ FS	1	1.5
CM11	CM11-A	200 CPM Card Reader for 80 column marked cards. Includes Controller.	11/CPU	4,900	No	50	240	1 SPC/ FS	1	1.5
CD11-A	CD11-B	1000 CPM Card Reader for 80 column punched cards. Includes Controller.	11/CPU	10,000	No	70	240	1 SU/FS	1	2.5
CD11-EA	CD11-EB	1200 CPM Card Reader for 80 column punched cards. Includes Controller.	11/CPU	14,000	No	80	300	1 SU/FS	1	2.5
PAPER TAPE EQUIPMENT AND CONTROLLERS										
PR11		300 cps Paper Tape Reader. Includes Controller.	11/CPU	2,400	2	15	150	1 SPC/ PAN	1	1.5
PC11	PC11-A	300 cps Paper Tape Reader plus 50 cps Paper Tape Punch combination. Includes Controller.	11/CPU	3,900	2	30	320	1 SPC/ PAN	1	1.5
	H722	Transformer required for 230 volt, 50 Hz operation of PR11 or PC11-A.	11/CPU	100	2	—	—	—	—	—
PMK01-BA	PMK01-BB	Maintenance paper tape reader kit. Required for all customer maintained systems not otherwise having a paper tape reader. Customer installed.	11/CPU	2,700	No	—	—	1 SPC/ PAN	1	1.5

Option Number 115V, 60Hz 230V, 50Hz		Description	Prerequisite	Purchase Price	Discount Type	Field Maintenance	Service Installation	Mounting Code	Amps @ Bus +5V Load Needed	
TERMINAL CONTROLLERS (LOCAL)										
LC11-A		Terminal Controller for LA30-P DECwriter. 30 cps.	11/CPU	400	2	6	60	1 SPC	1	1.5
DL11-A		Terminal Controller for LT33 or LT35 Teletype.	11/CPU	400	2	6	60	1 SPC	1	1.8
DL11-C		Terminal Controller for DIGITAL-supplied teleprinters, VT05B or LA30-C serial DECwriter. Specify send/receive speed.	11/CPU	400	2	6	60	1 SPC	1	1.8
TERMINALS										
LA30-PA	LA30-PD	DECwriter hard copy terminal. 30 cps.	LC11-A	2,795	2	30	120	FS	—	—
LA30-CA	LA30-CD	Serial DECwriter hard copy terminal. Switch selectable to 110, 150, or 300 baud. 20 mA interface.	DL11-C	3,195	2	30	120	FS	—	—
LA30-EA	LA30-ED	Serial DECwriter hard copy terminal. Switch selectable to 110, 150, or 300 baud. EIA, RS232C, and CCITT compatible interface for direct connection to a modem.	—	3,195	2	30	120	FS	—	—
✓LT33-DC	LT33-DD	ASR-33 hard copy terminal with paper tape reader/punch. 10 cps. (110 baud.)	DL11-A	1,620	No	30	130	FS	—	—
LT33-CC	LT33-CD	KSR-33 hard copy terminal without paper tape reader/punch. 10 cps. (110 baud.)	DL11-A	1,275	No	25	80	FS	—	—
LT35-DC	LT35-DD	ASR-35 hard copy terminal with paper tape reader/punch. 10 cps. (110 baud.)	DL11-A	4,860	No	25	150	FS	—	—
LT35-CC	LT35-CD	KSR-35 hard copy terminal without paper tape reader/punch. 10 cps. (110 baud.)	DL11-A	3,240	No	22	80	FS	—	—
VT05B-AA	VT05B-AD	Alphanumeric CRT terminal. No parity. Half ASCII.*	DL11-C	2,795	2	22	80	FS	1	—
VT05B-BA	VT05B-BD	Alphanumeric CRT terminal. No parity. Full ASCII.*	DL11-C	2,795	2	22	80	FS	1	—
VT05B-CA	VT05B-CD	Alphanumeric CRT terminal. Parity. Half ASCII.*	DL11-C	2,795	2	22	80	FS	1	—
VT05B-DA	VT05B-DD	Alphanumeric CRT terminal. Parity. Full ASCII.*	DL11-C	2,795	2	22	80	FS	1	—

*Note: Adjustable from 10 cps to 240 cps. Select DL11-C series interface for proper speed.

Option Number 115V, 60Hz 230V, 50Hz		Description	Prerequisite	Purchase Price	Discount Type	Field Main-tenance	Service Installation	Mount-ing Code	Amps Bus Load	Amps I_{o2} +5V Needed
GRAPHIC SYSTEMS										
GT40-AA	GT40-AB	Consisting of: KD11-B Central Processor 8K 900ns Core Memory Display Procesor 12" Diagonal CRT Keyboard Light Pen DL11-E Communication Interface.*	—	12,600	GT	135	—	FS	—	—
GT40-AC	GT40-AD	ASR-33 replaces keyboard.	—	13,820	GT	162	—	FS	—	—
GT40-AE	GT40-AF	LA30 replaces keyboard.	—	14,895	GT	162	—	FS	—	—
GT40-BA	GT40-BB	Consisting of: KD11-B Central Processor 4K 900ns Core Memory Display Processor 12" Diagonal CRT Keyboard Light Pen DL11-E Communication Interface.*	—	10,900	GT	120	—	FS	—	—
GT40-BC	GT40-BD	ASR-33 replaces keyboard.	—	12,120	GT	147	—	FS	—	—
GT40-BE	GT40-BF	LA30 replaces keyboard.	—	13,195	GT	147	—	FS	—	—
DISPLAY CONTROLLERS										
AA11-DA	AA11-DB	Basic Digital to Analog Display Control. Required for all display controllers.	11/CPU	1,000	2	6	10	1 SU	1	2.9
BA614		Digital to Analog Converter for display controller. Two (2) BA614s are required for each display controller.	AA11-D	375	2	5	30	—	—	—
AA11-A		Display Controller for VT01-A Display.	AA11-D+ 2 BA614	600	2	4	20	1 SU	1	2.9
AA11-B		Display Controller for VR01-A Display.	AA11-D+ 2 BA614	600	2	4	20	1 SU	1	2.9
AA11-C		Display Controller for VR14 Display.	AA11-D+ 2 BA614	600	2	4	20	1 SU	1	2.9
DISPLAYS										
VT01-A		DIGITAL-modified Tektronix 611 Storage Tube Display.	AA11-A	3,000	No	75	60	FS	—	—
VR01-A		Tektronix RM503 Oscilloscope Display.	AA11-B	1,000	No	19	190	PAN	—	—
VR14	VR14-A	7" x 9" Point Plot Display.	AA11-C	3,000	No	18	100	PAN	—	—
VR20	VR20-A	7" x 9" Color (red & green) Point Plot Computer Display Rack Mount.	VC20	4,000	2	22	100	PAN	—	—
VR20-C	VR20-D	Table Top VR20.	11/CPU	4,000	2	22	100	FS	—	—
VC20		10-Bit Color Print Plot Display Controller.	11/CPU	2,750	2	5	30	PAN	—	—

*Note: The communications controller Baud rate must be specified from the following groups:

- Group 1: 110 Baud (55, 36.7, 220, 440, 880, 1320, 1760)
- Group 2: 134.5 Baud (44.8, 67.3, 269, 538, 1076, 1614, 2152)
- Group 3: 300 Baud (50, 75, 150, 600, 1200, 1800, 2400)
- Group 4: 9600 Baud (200, 300, 600, 1200, 2400, 4800)

Option Number 115V, 60Hz 230V, 50Hz		Description	Prerequisite	Purchase Price	Discount Type	Field Maintenance	Service Installation	Mounting Code	Bus Load	Amps @ +5V Needed
LABORATORY PERIPHERAL SYSTEMS										
LPS11-SA	LPS11-SB	Lab Peripheral System mounting unit, front panel, UNIBUS interface, and power supply. Rack Mountable.	11/CPU	1,700	2	—	75	SM PAN	1	—
LPS11-SD	LPS11-SE	Lab Peripheral System mounting unit, front panel, UNIBUS interface, and power supply table top.	11/CPU	1,700	2	—	75	FS	1	—
LPSAD-12		12-bit ADC, sample & hold, 8 channel multiplexer, and LED (Light Emitting Diodes) 6-digit programmable decimal readout display.	LPS11-S	1,250	2	40	75	—	—	—
LPSAD-NP		Direct memory access (DMA) option for LPSAD-12 ADC.	LPSAD-12	1,000	2	3	40	—	—	—
LPSAM		8 channel expansion multiplexer (if more than 8 channels are implemented).	LPSAD-12	250	2	4	40	—	—	—
LPSSH		Second Sample & Hold for a Dual Sample & Hold Configuration.	LPSAM	500	2	7	60	—	—	—
LPSAG		Four differential preamplifiers with ± 1 volt input. Maximum of 4 LPSAGs per LPS11-S system.	LPSAD-12	230	2	8	60	—	—	—
LPSAG-VG		Four independently selectable multigain differential preamplifiers. Ranges: $\pm 1V$, $\pm 5V$, 0 to +2V, 0 to +10V; and all differential inputs.	LPSAD-12 LPSAM	500	2	15	90	—	—	—
LPSKW		Programmable real-time clock & two Schmitt triggers.	LPS11-S	750	2	5	50	—	—	—
LPSVC		Display control including two 12-bit DACS. This controller is capable of handling DIGITAL's VR14 and VR20 scopes. Also, Tektronix's RM503, 602, 604, 611 & 613 scopes.	LPS11-S	1,100	2	10	50	—	—	—
LPSDR		16-bit buffered digital I/O with drive capabilities and two programmable N.O. relays.	LPS11-S	600	2	5	50	—	—	—
ANALOG TO DIGITAL CONVERTER (High Level)										
AD01-DA	AD01-DB	Analog to Digital Conversion Subsystem. 10-bit unipolar or 10-bit plus sign (optional with purchase of AH05) analog to digital converter. Multiplexer control for up to 32 channels of single-ended, high-level inputs. Includes 4 levels of Gain Selection, interface and power supply.	11/CPU	2,400	2	20	150	PAN	1	—
A124		Mux Module 4 channels. Mounts in AD01-D.	AD01-D	60	2	2	8	—	—	—
AH04		Sample and Hold. Mounts in AD01-D.	AD01-D	300	2	3	60	—	—	—
AH05		Sign Bit, 11th bit, 2's complement. Mounts in AD01-D, + 10 to - 10V IN.	AD01-D	400	2	6	80	—	—	—
AH05-A		Sign Bit, 11th bit, 2's complement. Mounts in AD01-D, 0 to +10V IN.	AD01-D	400	2	6	80	—	—	—

Option Number 115V, 60Hz	230V, 50Hz	Description	Prerequisite	Pur- chase Price	Discount Type	Field Main- tenance	Service Installa- tion	Mount- ing Code	Amps @ Bus Load	+5V Needed
ANALOG TO DIGITAL CONVERTER (Low Level)										
AFC11		Master low level, differential analog input subsystem. Includes 13-bit, A/D converter, programmable gain amplifier, and address decoding and control logic for 32 channels (expandable to 128 channels by adding AM07-B file units). Maximum capacity is three (3) AM07-Bs. Requires an H964 series cabinet.	11/CPU H964 series cabinet	5,500	No	39	90	—	1	—
AFC8-XA		Second, Third, Fifth, or Sixth Expander low level differential analog input subsystem. Provides address decoding and control logic for 32 channels (expandable to 192 channels by adding AM07-B file units). Maximum capacity is five (5) AM07-Bs. Mounts in same H964 series cabinet as AFC11 Master Subsystem or AFC8-XB Expander Subsystem.	AFC11 or AFC8-XB	1,900	No	20	95	—	—	—
AFC8-XB		Fourth Expander low level, differential analog input subsystem. Provides address decoding and control logic for 32 channels (expandable to 192 channels by adding AM07-B file units). Maximum capacity is five (5) AM07-Bs. Requires an H964 series cabinet.	AFC11 H964 series cabinet	1,900	No	20	95	—	—	—
AM07-B		32 Channel File Unit. Provides address decoding and control logic for up to four (4) BA150 Multiplexer Modules. Mounts in AFC11, AFC8-XA, or AFC8-XB.	AFC11	300	No	3	30	—	—	—
BA150		Eight Channel flying capacitor Multiplexer Module. Requires a BA903, BA904, or BA905 for signal conditioning.	AM07-B or AFC11	300	No	4	40	—	—	—
BA903		Direct Signal Eight Channel Conditioning module. Provides filtering, scaling, or attenuation, and connection to screw terminal cable assembly.	BA150	40	No	4	40	—	—	—
BA904		Voltage/Voltage Eight Channel Signal Conditioning Module. Provides filtering, scaling, or attenuation, and connection to screw terminal cable assembly.	BA150	40	No	4	40	—	—	—
BA905		Current/Voltage Eight Channel Signal Conditioning Module. Provides filtering, scaling, or attenuation, and connection to screw terminal cable assembly.	BA150	40	No	4	40	—	—	—
BC90C		Dual screw terminal/cable assembly. Provides screw terminal connections for 16 pairs of input field wiring. Connects to two Signal Conditioning Modules (BA903, BA904, or BA905).	BA903, BA904, or BA905	80	No	—	—	—	—	—

Option Number 115V, 60Hz 230V, 50Hz		Description	Prerequisite	Purchase Price	Discount Type	Field Maintenance	Service Installation	Mounting Code	Amps @ Bus Load	+5V Needed
TELEGRAPH INTERFACES										
DC08-CS		Telegraph Line Interface Panel. Accommodates up to 16 DC08-CM Dual-Line Adapters. Consists of wired system unit, rack, and control modules.	DM11-AB	2,000	2	4	25	CAB	—	—
DC08-CM		One Dual Telegraph Terminal and Receive Line Adapter. Implements 2 transmit and receive telegraph line interfaces in the DC08-CS.	—	500	2	2	25	—	—	—
793	793-A	Power Supply to provide power to the transmit side of telegraph line.	DC08-CS	215	2	7	50	—	—	—
DC08-EB		Telegraph Line Current Adjustment Panel. Provides line current monitoring and adjustment for 32 telegraph receive and transmit lines.	DC08-CS	2,000	2	2	120	—	—	—
893		Fuse Panel; provides individual line fuses for each of 32 telegraph lines (receive and transmit).	H793	1,000	2	0	30	—	—	—
DC08-D		Distribution Panel provides individual terminal blocks to facilitate connection of 32 telegraph lines.	DC08-CS	1,000	2	2	120	—	—	—
ACOUSTIC COUPLER										
DF01-A		Acoustic telephone coupler, simultaneous TTY and EIA RS232 output, half and full duplex operation, data rates up to 300 baud.	—	425	No	10	75	FS	—	—
TELETYPE-DATASET ADAPTER										
H313-A		Voltage-current adapter: connects DIGITAL supplied TTY output for use with Bell 103 Dataset or equivalent.	—	180	2	—	—	FS	—	—
LINE SIGNAL CONDITIONERS										
DF11-A		TTL to EIA/CCITT voltage levels. Twenty-five foot cable with DB25P 25-pin male Dataset plug. Signalling rates up to 9600 baud.	DC11, DM11, DP11	200	2	5	50	1 DF	—	—
DF11-BA		TTL to audio frequency shift keyed tone signals (integral 103-type modem) in the Originate-Only mode. Twenty-five foot cable and connector provided for connection with Bell System Data Access Arrangement CDT or to private wireline channels. Signalling rate up to 300 baud.	DM11, DC11*, DL11*	450	2	10	75	1 DF	—	—
DF11-BB		As above DF11-BA except unit operates in Answer-Only mode, and Interfaces to Bell System Data Access Arrangements CBS or CDT.	DM11, DC11*, DL11*	495	2	10	75	1 DF	—	—

Note: The DF11-BA and BB may be used without Data Access Arrangements on customer owned lines.

Option Number 115V, 60Hz 230V, 50Hz	Description	Prerequisite	Pur-	Discount	Field	Service	Mount-	Amps @	
			chase Price	Type	Main- tenance	Install- ation	ing Code	Bus Load	+5V Needed
DF11-F	TTL to 20 milliampere active local Teletype loop. Connector is Amp Mate-n-Lok for connection with customer-supplied 22AWG, 2 twisted pair cable to local or remote (up to 1500 ft.) Model 33 or 35 Teletype.	DM11, DC11*	100	2	5	50	1 DF	—	—
DF11-G	TTL to Bell System 301/303 Dataset Interface, signal levels, cable connector, and signal pinning compatible with the Bell 301/303 Data-sets. Supplied with 25 foot cable. Signalling rates to 250K baud.	DP11	575	2	5	50	1 DF	—	—
DF11-K	TTL to active or passive 4-wire current mode (20mA.) loop. Connector is Amp Mate-n-Lok for connection with customer-supplied cable. Signalling rates up to 2400 baud, at distances up to 1500 feet.	DM11, DC11*, DL11*	100	2	5	50	1 DF	—	—
INDIVIDUAL ASYNCHRONOUS INTERFACES									
DL11-A	Current Loop (20mA.) Serial Line Interface. Unless specified, baud rate is 110.	11/CPU	400	2	6	60	1 SPC	1	1.8
DL11-B	EIA RS232C Serial Line Interface. 25' (7.5m) cable for connection to modem. Does not provide modem control.*	11/CPU	450	2	6	60	1 SPC	1	1.8
DL11-C	Current Loop (20mA.) Serial Line Interface with customer specifiable speed, character size, parity, and stop bit size.*	11/CPU	400	2	6	60	1 SPC	1	1.8
DL11-D	EIA RS232C Serial Line Interface with customer specifiable speed, character size, parity, and stop bit size. Includes 25' (7.5m) cable for connection to modem. Does not provide modem control.*	11/CPU	450	2	6	60	1 SPC	1	1.8
DL11-E	Modem Controlling EIA RS232C Serial Line Interface with customer specifiable speed, character size, parity and stop bit size. Includes 25' (7.5m) cable for connection to modem.*	11/CPU	500	2	6	60	1 SPC	1	1.8

Note: The data rates and distances cited above are those warranted by DIGITAL. They are applicable in electrically quiet environments, and do not necessarily represent limiting values.

* Special mounting requirements. See applicable option bulletin.

Option Number 115V, 60Hz 230V, 50Hz		Description	Prerequisite	Purchase Price	Discount Type	Field Maintenance	Service Installation	Mounting Code	Bus Load	Amps @ +5V Needed
ASYNCHRONOUS INTERFACE MULTIPLEXERS										
DM11-AA	DM11-AC	Asynchronous 16-line Single Speed Multiplexer and mounting panel. Accommodates four (4) DM11-DA or DM11-DB line adaptors for a total of 16 lines. Maximum baud rate is 1200.*	11/CPU	3,200	2	30	175	2 SU	1	4.9
DM11-DA		Line adaptor for four local terminals (data only).	DM11-AA DM11-AC	150	2	5	40	SM. PAN.	—	—
DM11-DB		Line adaptor for four EIA lines (data only). Includes four 25' modem cables.	DM11-AA DM11-AC	450	2	10	40	SM. PAN.	—	—
DM11-DC		Provides line conditioning for 4 EIA RS232C compatible lines with modem control, plus four 25' modem cables.	DM11-AA DM11-AC	800	2	5	40	—	—	—
VARIABLE SPEED ASYNCHRONOUS INTERFACES										
DC11-AA		Dual clock and System Unit mounting for two (2) DC11-DA full duplex interface module sets. Line speed is program selectable: 110, 134.5, 150, 300 baud. (These are typical 103 modem speeds.)	11/CPU	250	2	3	50	1 SU	—	—
DC11-AB		Same as DC11-AA but for 110, 300, 1200, 1800 baud. (Typical 202 modem speeds.)	11/CPU	250	2	3	50	1 SU	—	—
DC11-AC		Same as DC11-AA but for 110, 150, 600, 1200 baud. (Typical European speeds.)	11/CPU	250	2	3	50	1 SU	—	—
DC11-AD		Same as DC11-AA but for 50, 110, 134.5, 150 baud.	11/CPU	350	2	3	50	1 SU	—	—
DC11-AE		Same as DC11-AA but for 75, 110, 134.5, 150 baud.	11/CPU	350	2	3	50	1 SU	—	—
DC11-AG		Same as DC11-AA but for 134.5, 150, 300, 1200 baud.	11/CPU	250	2	3	50	1 SU	—	—
DC11-AH		Same as DC11-AA but for 110, 134.5, 600, 1200 baud.	11/CPU	250	2	3	50	1 SU	—	—
DC11-AX		Same as DC11-AA but for 110, 134.5, 150 baud plus one customer defined baud rate above 600 baud.	11/CPU	350	2	3	50	1 SU	—	—
DC11-DA		Full Duplex Serial Module Set which implements one line. Each DC11-A accommodates two (2) DC11-DAs. Includes EIA/CCITT termination suitable for direct use with 103 or 202 modems. Handles 5, 6, 7, 8-bit codes with 1 or 2 stop bits.	DC11-A	600	2	7	50	—	1	2.0

* Customer must specify baud rate, number of data bits, number of stop bits, and parity.

Option Number 115V, 60Hz 230V, 50Hz		Description	Prerequisite	Purchase Price	Discount Type	Field Maintenance	Service Installation	Mounting Code	Bus Load	Amps @ +5V Needed
SYNCHRONOUS INTERFACES										
DP11-DA		Full/Half Duplex Synchronous interface for direct use with 201 modems. Double buffered. Includes System Unit and 25' modem cable. Space available for either a DP11-CA or a DP11-KA.	11/CPU	1,400	2	18	125	1 SU	1	2.5
DP11-DC		Same as above only suitable for direct use with 303 modems. Includes 25' modem cable.	11/CPU	1,800	2	18	125	1 SU	1	2.5
DP11-CA		Data/Sync Register Extender. Adds the ability to handle 10, 11 or 12-bit data characters. Mounts in DP11.	DP11-DA or DP11-DC	300	2	3	50	—	—	—
DP11-KA		Internal Clock. Clocking source to be used for direct connection of DP11 to local synchronous terminal or local synchronous computer interface (without modems). Baud rate must be specified as 2400, 4800, 9600, 19.2K, or 40.8K. Mounts in DP11.	DP11-DA or DP11-DC	200	2	3	50	—	—	—
AUTO DIAL INTERFACES										
DN11-AA		System Unit mounting for up to 4 DN11-DA Module sets.	11/CPU	300	2	5	70	1 SU	—	—
DN11-DA		Module Set interface to Bell 801 ACU. Includes 25' cable. A DN11-AA accommodates up to four DN11-DA.	DN11-AA	400	2	3	50	—	1	1.0
H312-A		Null Modem—allows direct connection of any peripheral having an EIA 232 interface. Requires a DC11-DA, DM11-DB, or DP11-DA with DP11-KA.	—	60	2	—	50	—	—	—
GENERAL PURPOSE INTERFACES										
DR11-C		General purpose digital interface. Permits bidirectional 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.	11/CPU	400 430	2	5	60	1 SPC	1	1.5
DR11-B		General purpose direct memory access interface. Moves data directly between user's device and memory. Includes word count, current address, and data registers. Can be used for high-speed interprocessor communications.	11/CPU	1,200	2	12	125	1 SU	1	3.2

Option Number 115V, 60Hz 230V, 50Hz		Description	Prerequisite	Purchase Price	Discount Type	Field Maintenance	Service Installation	Mounting Code	Bus Load	Amps @ +5V Needed
INTERFACE MODULES										
M783		UNIBUS transmitter module, 12 drivers.	—	30	MOD	—	—	—	—	—
M784		UNIBUS receiver module, 16 receivers.	—	30	MOD	—	—	—	—	—
M785		UNIBUS transceiver module, 8 drivers and 8 receivers.	—	35	MOD	—	—	—	—	—
M786		General Purpose Interface Module. 16-bit Flip Flop Register with bus receivers and transmitters.	—	220	MOD	—	—	—	—	—
M105		Address Selector Module, 4 addresses.	—	65	MOD	—	—	—	—	—
M782		Interrupt Control Module, 2 interrupts.	—	100	MOD	—	—	—	—	—
M920		UNIBUS Connector Module. Used to interconnect System Units.	—	45	MOD	—	—	—	—	—
EXTENSION MOUNTING BOXES										
H960-DA	H960-DB	Cabinet with single 11/40 Extension Mounting Box. Provides mounting space for nine (9) System Units. Includes bulk power supply which provides 3 (+5V) Regulators (75 amps) and 2 (−15V) Regulators (20 amps).	11/40	2,400	2	15	100	—	—	—
H960-EA	H960-EB	Cabinet with dual 11/40 Extension Mounting Boxes. Provides mounting space for eighteen (18) Systems Unit in two nine unit frames. Each frame includes power supply which provides: 3 (+5V) Regulators (75 amps) and 2 (−15V) Regulators (20 amps).	11/40	4,400	2	20	150	—	—	—
H964-AA	H964-AB	Bottom Entry Single Cabinet for low level A/D or Digital I/O equipment.	11/CPU	1,400	No	2	30	—	—	—
H964-CA	H964-CC	Top or Bottom Entry Dual Cabinet for low level A/D or Digital I/O equipment.	11/CPU	2,000	No	2	70	—	—	—
H964-CB	H964-CD	Bottom Entry Dual Cabinet for low level A/D or Digital I/O equipment.	11/CPU	2,000	No	2	70	—	—	—
H964-MA		Mechanical Assembly for mounting screw terminals.	H964-AA H964-AB	75	No	—	—	—	—	—
H964-P		Mechanical Assembly to permit top entry of field cables to single cabinets (H964-AA or H964-AB).	H964-AA H964-AB	150	No	—	—	—	—	—
BA11-ES		Rack-mountable Extension Mounting Box. Provides mounting space for six (6) System Units. Requires an H720 power supply. Cannot be used to mount 11/40 core memories.	11/CPU	400	2	—	60	—	—	—
H720-E	H720-F	Power Supply for BA11-ES.	BA11-ES	600	2	10	50	—	—	—
CABINETS AND TABLES										
H961-A		Free-standing cabinet. No end panels.	—	430	2	—	—	CAB	—	—
H952-HA		Free-standing table.	—	120	2	—	—	FS	—	—

Option Number 115V, 60Hz 230V, 50Hz		Description	Prerequisite	Purchase Price	Discount Type	Field Maintenance	Service Installation	Mounting Code	Bus Load	Amps @ +5V Needed
SYSTEM UNITS										
DD11-A		Peripheral Mounting Panel. Includes UNIBUS Connector Module—M920. Accommodates up to four (4) small peripheral controllers.	11/CPU	175	2	—	50	1 SU	—	—
BB11		Blank Mounting Panel. For custom interface design and mounting System Units.	11/CPU	90	MOD	—	50	1 SU	—	—
DD11-B		Peripheral Mounting Panel. Includes UNIBUS Connector Module—M920. Accommodates up to four (4) small peripheral controllers or two (2) DF11s with DL11s and 2 small peripheral controllers.	11/40	175	2	—	50	1 SU	—	—
UNIBUS EXTENSION HARDWARE										
DB11-A		UNIBUS Repeater. Allows an additional 18 unit loads and an additional 50' of UNIBUS to be added.	11/CPU	1,000	2	5	75	1 SU	2	2.2
BC11A-02		2' UNIBUS cable.	11/CPU	90	MOD	—	—	—	—	—
BC11A-05		5' UNIBUS cable.	11/CPU	100	MOD	—	—	—	—	—
BC11A-8F		8'6" UNIBUS cable.	11/CPU	105	MOD	—	—	—	—	—
BC11A-10		10' UNIBUS cable.	11/CPU	110	MOD	—	—	—	—	—
BC11A-15		15' UNIBUS cable.	11/CPU	125	MOD	—	—	—	—	—
BC11A-25		25' UNIBUS cable.	11/CPU	160	MOD	—	—	—	—	—
SPARE PART AND MAINTENANCE KITS										
SP11-KF		KD11-A Processor Spare Parts.	11/40	2,950	2	—	—	—	—	—
SP11-KE		KD11-B Processor Spare Parts.	11/10	1,800	2	—	—	—	—	—
SP11-MC		Spares for MM11-L and MM11-S.	MM11-L, S	1,800	2	—	—	—	—	—
SP11-MA		Spare parts for the MM11-E Memory.	MM11-E	700	2	—	—	—	—	—
SP11-MB		Spare parts for the MM11-F Memory.	MM11-F	700	2	—	—	—	—	—
SP11-PA		Spare parts for the H720-A and H720-B power supplies	H720-A, B	195	2	—	—	—	—	—
SP11-PB		Spare parts for the H720-E and H720-B power supplies.	H720-E, F	195	2	—	—	—	—	—
SP11-PD		Spare parts for 11/40 power supply.	11/40	900	2	—	—	—	—	—
SP11-PE		Spare parts for 11/10 power supply.	11/10	350	2	—	—	—	—	—
KM11-A		Maintenance Module—light and switch card for examination of machine states.	11/CPU	250	2	—	—	—	—	—
5509081-0-1		Transparent overlay for KM11 to check KE11-A.	KM11-A	5	No	—	—	—	—	—
5509081-0-3		Transparent overlay for KM11 to check RK11.	KM11-A	5	No	—	—	—	—	—
5509081-0-5		Transparent overlay for KM11 to check TM11/TU10.	KM11-A	5	No	—	—	—	—	—
5509081-0-12		Transparent overlay for KM11 to check KD11-A.	KM11-A 11/40	5	No	—	—	—	—	—
5509081-0-13		Transparent overlay for KM11 to check KT11-D, KE11-E, KE11-F.	KM11-A 11/40	5	No	—	—	—	—	—

SOFTWARE AND SYSTEMS SUPPORT

INSTALLATION AND ADVISORY SUPPORT

During the 90-day Warranty Support Period, systems including standard supported software packages receive no-charge software support up to the maximum accumulated time indicated below.* Support includes on-site software installation plus technical counselling and system familiarization. Maximum accumulated support levels:

Timesharing System:	5 days
Batch Processing Systems:	5 days
Real-time Systems:	5 days
Disk Operating Systems:	2 days

*This support is in addition to standard DIGITAL remedial support.

RESIDENT SOFTWARE SUPPORT

Full-time on-site software specialist for system training, consulting, and implementation. Minimum contract period is six (6) months.	—	\$3,380 per month
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CONTRACT CONSULTING

Part-time software specialist for system training, consulting, and implementation. Minimum contract period is three (3) months with a committed level of 2-10 days of time each month.	—	28 per hour plus expenses
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ON-CALL CONSULTING

Software consulting outside the definition of contract consulting. Consulting time is billed monthly for the actual amount of time used.	—	33 per hour plus expenses
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MAINTENANCE

Note: The price of each PDP-11 system includes initial installation and checkout plus system maintenance (including all parts and labor) during the 90-day warranty period.

CONTRACT MAINTENANCE

Standard 40-Hour Maintenance Contract. Provides complete maintenance coverage for the standard business day, five days a week. Includes all parts and labor required for system maintenance, plus regularly scheduled preventive maintenance and installation of engineering improvements.	—	The price of a standard maintenance contract (per month) is listed for each system and option.
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Extended Maintenance Contracts. Includes all services of a standard maintenance contract, plus service coverage for up to 24 hours a day, seven days a week.	—	Extended contract prices are available on request.
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PER-CALL MAINTENANCE

Non-contract maintenance service available during the standard business day five days a week.	—	per-call rates available on request.
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FIELD INSTALLATION

Installation and initial checkout of options being added to an existing installation.	—	The price of field installation is listed for each option.
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EDUCATIONAL SERVICES

Option	Prerequisite	Purchase Price
STANDARD COURSES		
Introduction to the PDP-11. Basic description of the PDP-11 family, architecture and instruction set. Length: 3 days.	—	190
Programming the PDP-11. Techniques of programming PDP-11 family computers for experienced assembly language programmers. Length: 3 days.	Knowledge of assembly language programming techniques.	180
PDP-11 Disk Operating System. Basic description of the disk-based operating system: how to generate it and how to use it to compile, assemble, edit, link, and run programs. Length: 5 days.	Programming the PDP-11 or equivalent experience.	325 or 1 Training Credit.
PDP-11 Disk System Software. Techniques of programming PDP-11 family computers plus basic description of the disk-based operating system: how to generate it and how to use it to compile, assemble, edit, link and run programs. Includes the essential elements of Programming the PDP-11 . Length: 10 days.	Knowledge of assembly language programming techniques.	540 or 2 Training Credits.
Resource Timesharing Systems (RSTS). Writing, running, and modifying programs using the timesharing language BASIC-PLUS. Also covers system generation and the use of system utility programs. Length: 5 days.	—	325 or 1 training credit
PDP-11 Real-time Executive Software. Description of the theory and practice of applying RSX to real-time problems. Covers system generation and the creation and scheduling of tasks. Length: 5 days.	PDP-11 Disk Operating System or equivalent experience	325 or 1 training credit
Interfacing a PDP-11. The fundamentals for designing interfaces for the PDP-11 family of computers. Covered will be directly programmed, interrupt serviced, and direct memory access types of interfaces. Length: 5 days.	Solid state logic circuitry and mil-standard logic symbology familiarization	300
PDP 11/10 Hardware familiarization. Provides the engineer or technician with the skills necessary to troubleshoot and repair a basic PDP-11/10 system. Length: 10 days.	Experience in digital computer technology	600
PDP-11/40 Hardware familiarization. Provides the student with the skills necessary to perform routine preventive and corrective maintenance of the basic PDP-11/40 system. Length: 10 days.	Experience in digital computer technology	540 or 2 Training Credits
PDP 11/40 Options Maintenance. Topics covered include KE11-E, KE11-F, KJ11-A, KT11-D, KW11-L, BM792.	PDP-11/40 hardware familiarization course	325
ON-SITE COURSES		
One week standard course conducted on-site for up to 10 students.	—	2,000 plus instructor expenses
Two week standard course conducted on-site for up to 10 students.	—	3,500 plus instructor expenses
SPECIAL COURSES		
Special courses tailored to particular training problems. These courses are available on-site for the same price as standard on-site courses, plus instructor preparation time and instructor expenses.	—	2,000/week plus preparation plus instructor expenses

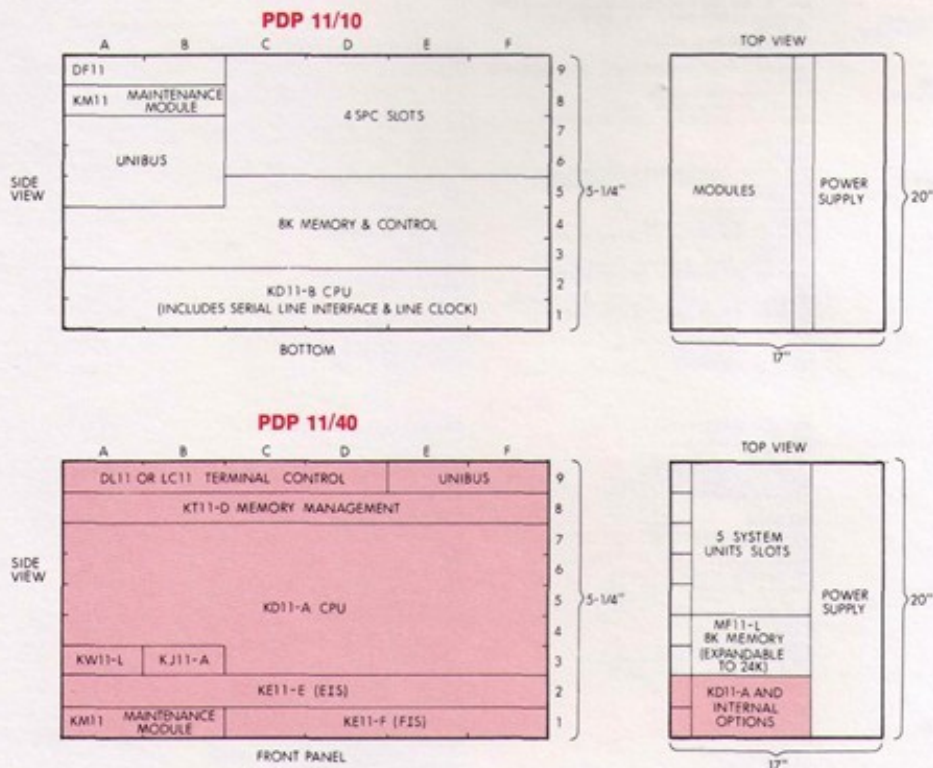
Option Number	Description	Prerequisite	Purchase Price
PAPER TAPE SOFTWARE			
QJ100	PAPER TAPE SOFTWARE (PTS) includes absolute and relocatable PAL assemblers, Editor, Linker, On-Line Debugger, Single User BASIC.	—	—
DISK OPERATING SYSTEM			
QJ220-AB	DISK OPERATING SYSTEM (DOS) license to use on a single processor. Includes binaries for Monitor, relocating PAL assembler, Editor, Linker, On-Line Debugger, Peripheral Interchange Package. (FORTRAN and MACRO assembler on systems with more than 8K core). Paper tape distribution.	Adequate DIGITAL hardware to support DOS	200
QJ220-AC	Same as QJ220-AB only DECTape distribution.	Adequate DIGITAL hardware to support DOS	200
QJ220-AD	Same as QJ220-AB only 9 Track Mag Tape distribution.	Adequate DIGITAL hardware to support DOS	200
QJ220-AF	Same as QJ220-AB only 7 Track Mag Tape distribution.	Adequate DIGITAL hardware to support DOS	200
QJ220-BB	Same as QJ220-AB only license to use on a single processor with less than adequate DIGITAL hardware to support DOS.	—	3,000
QJ220-BC	Same as QJ220-BB only distribution on DECTape.	—	3,000
QJ220-BD	Same as QJ220-BB only distribution on 9 Track Mag Tape.	—	3,000
QJ220-BF	Same as QJ220-BB only distribution on 7 Track Mag Tape.	—	3,000
BATCH OPERATING SYSTEM			
QJ250-AB	BATCH SOFTWARE. License to use on a single processor. Includes DOS binaries (QJ220) and BATCH control binaries. Distribution on paper tape.	Adequate DIGITAL hardware to support BATCH	1,500
QJ250-AC	Same as QJ250-AB only distribution on DECTape.	Adequate DIGITAL hardware to support BATCH	1,500
QJ250-AD	Same as QJ250-AB only distribution on 9 Track Mag Tape.	Adequate DIGITAL hardware to support BATCH	1,500
QJ250-AF	Same as QJ250-AB only distribution on 7 Track Mag Tape.	Adequate DIGITAL hardware to support BATCH	1,500
QJ250-BB	Same as QJ250-AB only license to use on a single processor with less than adequate DIGITAL hardware to support BATCH.	—	4,500
QJ250-BC	Same as QJ250-BB only distribution on DECTape.	—	4,500
QJ250-BD	Same as QJ250-BB only distribution on 9 Track Mag Tape.	—	4,500
QJ250-BF	Same as QJ250-BB only distribution on 7 Track Mag Tape.	—	4,500
RESOURCES TIMESHARING SYSTEM			
QJ400-AC	RESOURCE TIMESHARING SYSTEM (RSTS) License to use on a single processor. Includes binaries for 16-user resident executive, BASIC-PLUS, and utility programs. Distribution on DECTape. Training credit for one week of customer training.	Adequate DIGITAL hardware to support RSTS	2,500
QJ420-AE	Same as QJ400-AC only distribution on RK05-KA disk cartridge.	Adequate DIGITAL hardware to support RSTS	2,500
QJ400-AF	Same as QJ400-AC only distribution on 7 track Mag tape.	Adequate DIGITAL hardware to support RSTS	2,500
QJ400-AD	Same as QJ400-AC only distribution on 9 track Mag tape.	Adequate DIGITAL hardware to support RSTS	2,500
QJ400-BC	Same as QJ400-AC only license to use on a single processor with less than adequate DIGITAL hardware.	—	5,000
QJ400-BD	Same as QJ400-BC only distribution on 9 track Mag tape.	—	5,000
QJ420-BE	Same as QJ400-BC only distribution on RK05-KA disk cartridges.	—	5,000
QJ400-BF	Same as QJ400-BC only distribution on 7 track Mag tape.	—	5,000

SOFTWARE MANUAL KITS

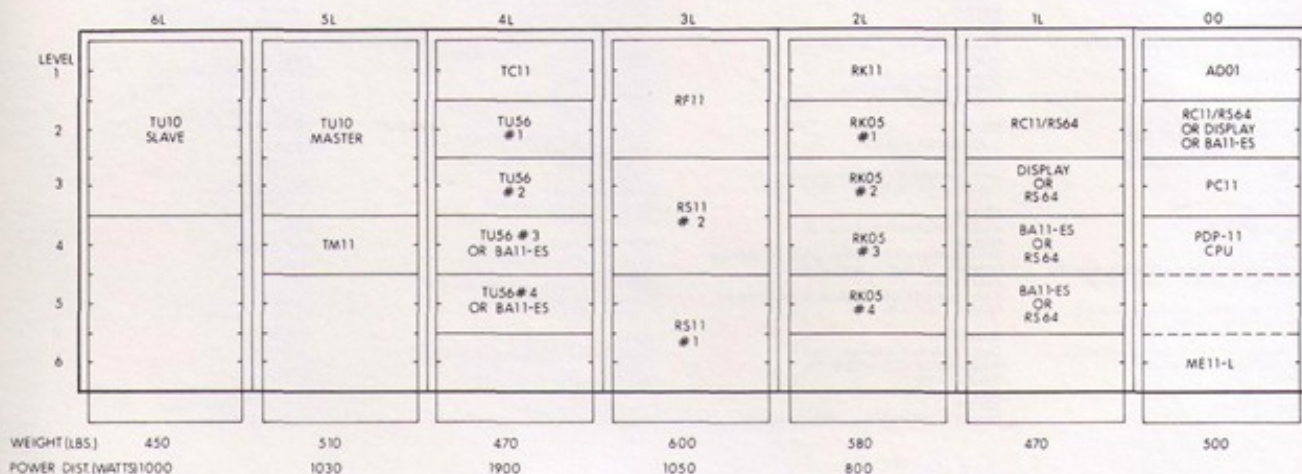
(One set of software manuals comes standard with each software option number ordered. Additional manual kits can be ordered as shown below.)

Option Number	Description	Prerequisite	Purchase Price
QJ100-AM	Paper Tape Software manual kit	—	8
QJ220-AM	Disk Operating System (DOS) manual kit	—	60
QJ250-AM	BATCH Operating System manual kit	QJ220-AM*	12
QJ400-AM	RSTS manual kit	QJ220-AM*	21

* At least one copy of the DOS manual kit should be available to a BATCH or RSTS manual kit user.



PREFERRED LOCATIONS OF PERIPHERALS



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Rua Carl. Vicente, 421, 1.º andar
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