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PREFACE

A pre-requisite to the use of this manual is a familiarity with both the DEC/X11 SYSTEM EXERCISER USER'S MANUAL and the XXDP+ USER'S MANUAL.

The material in this manual is primarily intended to provide DEC/X11 users with all of the cross-reference data required to successfully create user designed Run Time Exerciser (RTE) programs for PDP11 systems. However, supplementary information is also provided concerning the naming, distribution, revision, and release of all DEC/X11 software. The material is arranged in four sections, which contain the following.

- Section 1 defines the naming standards and conventions for all DEC/X11 software.
- Section 2 provides the user with all of the information required to use the cross-reference data contained in this manual for the construction of an RTE. Toward this end, the section includes a complete example of the implementation of a pre-build plan.
- Section 3 provides the user with all of the actual cross-reference data required to complete a build.
- Section 4 contains all of the supplementary information regarding the distribution, revision, release and special environmental considerations for all DEC/X11 software.
- Section 5 is the Bibliography.
- Section 6 is the Glossary.
- Appendix A provides the user with a sample build from pre-build planning through the actual build under the Configurator/Linker program.
- Appendix B Defines the ERROR TYPE (ERRTYP) CODES.

1.0 NAMING CONVENTIONS

The naming of DEC/X11 software adheres to the following conventions and standards.

1.1 Monitor Naming

Each Monitor Name consists of a single alphabetic character (i.e., A, B, C, etc.).

1.2 Device/Option Module Naming

The format of each Module Name consists of three alphabetic characters:

Module Name: WYZ

Where: WY - is a two-character device/option identifier

Z - is a module specifier (since others may exist for the same device/option).

1.3 File Code Naming

The File Code format consists of a six-character descriptor and a three-character file extension code. The names appear on both paper tapes and mass media for file identification (e.g., monitor library, RTE module, etc.). NOTE: The File Code must be as follows for a .OBJ file.

File Code: XWYZR0.OBJ

Where: X - DEC/X11 Software Identifier

WYZ - Module Name (See 1.2)

R - Revision Level (Alphabetic)

0 - Patch Level (must always be 0 for .OBJ files)

.OBJ - File Extension Code (.OBJ, .LIB, .BIN or .BIC)

1.4 Package Code Naming

The Package Code format is used to identify a diagnostic software package (ZZ) as DEC/X11 software (X).

Package Code:	ZZ	- CXWYZR0
Where:	ZZ	- Diagnostic Software Identifier
	C	- PDP-11 CPU identifier
	X	- DEC/X11 Software Identifier
	WYZ	- Module Name (See 1.2)
	R	- Revision Level (Alphabetic)
	0	- Patch Level (Numeric)

2.0 USING THE CROSS-REFERENCE DATA

Data for respectively cross-referencing CPU and device hardware with the appropriate monitor and device/option modules is contained in Section 3 (HARDWARE TO SOFTWARE CROSS-REFERENCE DATA).

However, for the inexperienced user of DEC/X11 software, the following material will reiterate the basic build requirements previously defined in the DEC/X11 User's Manual (refer to Subsection 3.2.2 PRE-BUILD PLANNING). This is followed by an example of data listing for a build associated with a typical PDP-11 system configuration in which: (1) a unique file name is created for the resultant RTE, (2) both monitor and test module names are derived, along with appropriate parameter values, for the Configuration Table (C-Table), and (3) an appropriate Configurator/Linker Program is selected for the build.

2.1 RTE Pre-Build Requirements

As described in PRE-BUILD PLANNING, Step 1, the user is advised to note (from related hardware documentation) the major components, options, and parameters of the system to be tested, that is:

- The PDP-11 CPU type and memory size.
- All available CPU Memory Options (KT, CACHE, etc.)
- All available devices and options (Line Clock, Floating Point Hardware, etc.)
- All device paramters (DVA, VCT, baud rates, etc.).

With this information the user is then ready to implement Step 2 of the pre-build plan by cross-referencing the known hardware data with the DEC/X11 software data contained in Section 3 and listing the information on a DEC/X11 System Configuration Worksheet.

2.2 Preparing The System Configuration Worksheet

In Figure 2-1 a completed worksheet is shown for a pre-defined RTE file (EXERR1.BIN) in which a compilation of known data is cross-referenced to define a monitor (C), modules (KWA, LPA, etc.), and parameters (DVA, VCT, etc.) for the build.

Excluding most of the device/options to simplify the example, the worksheet entries reflect the following system configuration:

1. A PDP11/34 CPU with 64K of memory
2. A full range of memory options (KT, CACHE, PARITY, ECC).
3. A list of 11 device/options with parameters, which include a:
   (a) KW11-L Line Clock, coded to provide a clock test message every 15 minutes.
   (b) LS11/LV01 Line Printer Controller and an 80-column 64-character Printer coded to provide 2 passes between each pause.

Using this information as an example of known data compiled by the user, corresponding worksheet entries and required DEC/X11 software are derived as follows.

DEC/X11 System Configuration Worksheet
SHEET 1 of 1

Selected DEC/X11 Monitor For Listed
CPU and CPU options: C

FILE: EXERR1.BIN DATE: 20 SEPT 78

DEVICE	MOD	R	DVA	VCT	BR1	BR2	DVC	SR1	SR2	SR3	SR4
KW11-A	KWA	A	177546*	100*	6*	0*	1*	4			
LS11/LV01	LPA	A	177514*	200*	4*	0*	1*	10000			
RX11/RX01	RXA	A	177170*	264*	5*	0*	2*				
TMB11/TS03	TMA	A	172520*	224*	5*	0*	1*				
RP11E/RP02	RPA	A	176710*	254*	5*	0*	2				
RK11-D/RK05	RKA	A	177400*	220*	5*	0*	1*				
RK611/RK06	RKB	A	177400*	210*	5*	0*	1*				
EIS	CPB	A									
11/34 Instr.	CPA	A									
FP11-A	FPB	A									

*SOFTWARE DEFAULTS

FIGURE 2-1
HARDWARE CONFIGURATION LISTING

2.2.1 Selecting An RTE File Name

As shown in Figure 2-1, a six-character RTE file name, with a three-character file extension, is created by the user in accordance with the standard defined in the File Code Naming subsection (1.3).

RTE Sample File Name: EXERR1.BIN

where:
- E - DEC/X11 Software Identifier for an RTE
- XER - RTE Name
- R - Current Revision Level
- 1 - Current Patch Level
- .BIN - File Extension Code (.BIN or .BIC)

The next step in the preparation of a worksheet is the selection of an appropriate Monitor.

2.2.2 Selecting The Monitor Program

As shown in Figure 2-1, Monitor C has been selected for the RTE (EXERR1.BIN) in regard to CPU type, memory size, and the number of memory options available. This is in accordance with the criteria set forth in the Processor to DEC/X11 Monitor subsection (3.1).

The known data for the selection of Monitor C is:

1. A PDP11/34 CPU
2. A Memory Size of 64K
3. All memory Options available:
   - Memory Management (KT)
   - Cache Memory (CACHE)
   - Memory Parity Checking (PARITY, ECC)

The final step in the preparation of the worksheet is the listing of all device names, module names, and parameters.

2.2.3 Selecting The Device/Option Modules

As shown in Figure 2-1, all device/option names are now listed on the worksheet and all known parameters are entered in the appropriate columns.

Using the device examples previously noted, the following may be initially listed:

1	2	3	4	5	6	7	8	9
DEVICE	MOD	R	DVA	VCT	BR1	BR2	DVC	SR1
KW11-L			177546	100	6	0	1	
LS11/LV01			177514	200	4	0	1	
:	:	:	:	:	:	:	:	:

Column 2 (MOD) may now be filled with appropriate DEC/X11 test module names by referencing an alphabetized listing, contained in the Device to DEC/X11 Module subsection (3.2), which associates each hardware device/option name with a DEC/X11 device/option module.

Thus, for the example, device and module names are associated as follows:

1	2
DEVICE	MOD
KW11-L	KWA
LS11/LV01	LPA
:	:

Using the DEC/X11 module names, the user may now reference the Device/Option Module Abstracts subsection (3.3) to derive: the module revision level (Column 3); all default or required parameters (Columns 4 through 8); and the switch register settings (column 9) for the coding of additional parameters (e.g., to provide a Line Clock test message at a pre-defined time).

However, prior to describing these entries, it should be understood that although all parameter values are also contained in the abstracts, these values are subject to change. Therefore, those values obtained by the user from current hardware documentation are primarily recommended for use, if only for the purpose of cross-checking the validity of the parameter values contained in the abstracts.

In any case, for the example, the revision (R) and switch register (SR1) coding is as follows:

3	9	SR1 PURPOSE
R	SR1	
A	4	;code permits test message every 15 mins.
A	010000	;code indicates 80-col., 64-char. printer
:	:	;and 2 passes between pauses.

With these entries the worksheet is completed and the preparation date is entered. The user has defined an appropriate monitor, test modules, and parameters for the Configuration Process. In addition, following the Linking Process, an RTE File Name has been created for the resultant module.

3.0 HARDWARE TO SOFTWARE CROSS-REFERENCE DATA

The information in this section allows the user to (1) initially associate a processor type with an appropriate DEC/X11 Monitor (3.1). This is followed by (2) an alphabetized listing of all device/options that are cross-referenced to their appropriate test modules (3.2). The section concludes with (3) an alphabetic listing, via test module names, of device/option module abstracts, which provide a complete summary of associated devices, default and required parameters, and switch register settings (3.3).

3.1 Processor To DEC/X11 Monitor

There are five basic monitor types (A,B,C,D,E) available to DEC/X11 users. However, four of these (B,C,D,E) have been expanded to accommodate APT processing and as such have been renamed (F,G,H,I). NOTE: Monitors F, G, H, AND I are to be used only with APT systems. Thus, with the similarities just described, nine monitor types are actually available.

In order to cross-reference a PDP11 processor to an appropriate monitor, the user must be completely aware of the requirements of the hardware configuration, as it relates to:

1. PDP11 CPU Type (e.g., 11/34, 11/60, 11/70)
2. Available Memory Size:
   (a) up to 28K-words

(b) up to 124K-words

(c) up to 1024K-words

3. Available Memory Options (e.g., KT, CACHE, etc.)

4. Available Devices and Options (e.g., Line Printer, Line Clock, etc.)

5. Special Operations (e.g., Error Logging, 22-Bit Addressing)

Since one or more of the aforementioned may be the clue to monitor selection, the following material describes the general abilities and restrictions of each monitor in regard to the accommodation of RTE Keyboard Commands (e.g., KTON and KTOFF required for Memory Management Option) and the availability of special operations (e.g., PDP11/60 Error Logging).

Finally, a DEC/X11 Monitor Performance Chart (Table 3-1) concludes the subsection and provides a quick cross-reference between each monitor, the RTE Keyboard Commands, and the special operations.

3.1.1 Monitor A

Monitor A is the smallest of the DEC/X11 monitors. As such, it can accommodate only 7 of the 22 RTE Keyboard Commands and has the following abilities and restrictions:

Monitor A can accommodate:

- o NPR transfers in up to 28K-words of memory.
- o Module Selection (SEL) and Deselection (DES).
- o Module Modification (MOD) and Summary (SUM).
- o Filler Word (FILL) and Switch Register Modification (SWR).

Monitor A cannot accommodate:

- o Running as part of an RTE in less than 12K system.
- o Time Conversions (i.e., clocks, module pass counts, etc.)
- o Memory Management and Cache Options (KT, CACHE).
- o Memory Parity Checking Options (PARITY, ECC).
- o Write Buffer Rotation (ROTON, ROTOFF).
- o Exerciser Relocation (KTON, KTOFF, RUNL).
- o Location Examination (EXAM).
- o Module Mapping (MAP).
- o UNIBUS Mapping (MON, MOFF).
- o Line Printers (LPON, LPOFF).
- o NPR Transfers in up to 124K-words of memory.
- o NPR Transfers in up to 1024K-words of memory.
- o 11/60 Error Logging
- o 11/70 Error Logging and 22-bit addressing.
- o Bad Vector Service

3.1.2 Monitor B or Monitor F

Monitor B(or F) can accommodate 15 of the 22 RTE Keyboard Commands. It can perform all of the functions of Monitor A and additionally:

Monitor B(or F) can accommodate:

- o Time Conversions (e.g., clock usage).
- o Memory Parity Checking Options (PARITY, ECC).
- o Write Buffer Rotation (ROTON, ROTOFF).
- o Location Examination (EXAM).
- o Module Mapping (MAP).
- o Line Printers (LPON, LPOFF).

Monitor B(or F) cannot accommodate:

- o Memory Management and Cache Options (KT, CACHE).
- o Exerciser Relocation (KTON, KTOFF, RUNL).
- o UNIBUS Mapping (MON, MOFF).
- o NPR transfers in up to 124K-words of memory.
- o NPR transfers in up to 1024K-words of memory.
- o 11/60 Error Logging.
- o 11/70 Error Logging and 22-bit addressing.
- o Bad Vector Service.

3.1.3 Monitor C or Monitor G

Monitor C(or G) can accommodate 20 of the 22 RTE Keyboard Commands, and can perform all of the functions of Monitors A and B; additionally:

Monitor C(or G) can accommodate:

- o Memory Management and Cache Options (KT, CACHE).
- o Exerciser Relocation (KTON, KTOFF, RUNL).
- o NPR Transfers in up to 124K-words of memory.
- o Bad Vector Service

Monitor C(or G) cannot accommodate:

- o UNIBUS Mapping (MON, MOFF).
- o NPR transfers in up to 1024K-words of memory.
- o 11/60 Error Logging
- o 11/70 Error Logging and 22-bit addressing.

3.1.4 Monitor D or Monitor H

Monitor D(or H) can accommodate 20 of the 22 RTE Keyboard Commands and perform all of the functions of Monitors A, B and C; additionally:

Monitor D(or H) can accommodate:

- o 11/60 Error Logging.

Monitor D(or H) cannot accommodate:

- o UNIBUS Mapping (MON, MOFF).
- o NPR transfers in up to 1024K-words of memory.
- o 11/70 Error Logging and 22-bit addressing.

3.1.5 Monitor E or Monitor I

Monitor E(or I) can accommodate all of the 22 RTE Keyboard Commands and perform all of the functions of Monitors A, B and C (Monitor D excluded); additionally:

Monitor E(or I) can accommodate:

- o UNIBUS Mapping (MON, MOFF).
- o NPR transfers in up to 1024K-words of memory.
- o 11/70 Error Logging and 22-bit addressing.

Monitor E(or I) cannot accommodate:

- o 11/60 Error Logging (Monitor D only).

COMMANDS & OPERATIONS	A	*B(F)	*C(G)	*D(H)	*E(I)
COFF (CACHE-OFF)			x	x	x
CON (CACHE-ON)			x	x	x
DES (DESELECT)	x	x	x	x	x
EXAM (EXAMINE LOC.)		x	x	x	x
FILL (FILLER WORD)	x	x	x	x	x
KTOFF (KT-OFF)			x	x	x
KTON (KT-ON)			x	x	x
LPOFF (LINE PRINTER-OFF)		x	x	x	x
LPON (LINE PRINTER-ON)		x	x	x	x
MAP (MAPPING)		x	x	x	x
MOD (MODIFY LOC.)	x	x	x	x	x
MOFF (UNIBUS MAP-OFF)					x
MON (UNIBUS MAP-ON)					x
POFF (PARITY/ECC-OFF)		x	x	x	x
PON (PARITY/ECC-ON)		x	x	x	x
ROTOFF (ROTATION-OFF)		x	x	x	x
ROTON (ROTATION-ON)		x	x	x	x
RUN (RUN MODE)	x	x	x	x	x
RUNL (RUN LOCKED MODE)			x	x	x
SEL (SELECT)	x	x	x	x	x
SUM (SUMMARY)	x	x	x	x	x
SWR (SWITCH REG.)	x	x	x	x	x
NPR'S IN 28K-WORDS	x	x	x	x	x
NPR'S IN 124K-WORDS			x	x	x
NPR'S IN 1024K-WORDS					x

TIME CONVERSIONS		x	x	x	x
RELOCATION			x	x	x
11/60 ERROR LOGGING				x	
11/70 ERROR LOGGING					x

x denotes support

* NOTE:
(F)
(G) APT
(H) MONITORS
(I)

DEC/X11 MONITOR
PERFORMANCE CHART
TABLE 3-1

3.2 Device To DEC/X11 Module

This material provides an alphabetized listing with which the user may cross reference a known device/option hardware name with an associated DEC/X11 test module name. Once the name of the test module is derived, it may be used to find (in subsection 3.3) an alphabetically arranged abstract of the module which provides a complete summary of its use.

DEVICE/OPTION	TEST MODULE
AA11/VT01-A	AAA
AA11-K	AAB
AAV-11	AAC
AD01-D	ADA
AD11-K	ADB
ADV-11	ADC
AFC11	AFA
AR-11	ARA
BM792-YA	BMC
BM873	
YA	BMC
YB	BMC
YC	BMC
YD	BMC
YF	BMC
SC	BMC
SE	BMC
SF	BMC
BUS TESTER	BTA,BTB
CAST	CST
CB-11	CBA
SCAN	
CB-11	CBB
DISTRIBUTE	
CB-11	CBC
CD-11	CDA
CR-11,CM-11	CRA
DC-11	DCA
DH-11	DHA
DJ-11	DJA
DL-11	DLA
DL-11E	~~DLB~~
DM11-BB	DMB
DMC-11	DMC
DN11	DNA
DP11	DPA
DQ11	DQA
DR11-A	DRA
DR11-B	DRB
DR11-C	DRC
DR11-K	DRC
DR11-M,DR11-L	DRE

DEVICE/OPTION	TEST MODULE
DR11-W	DRW
DRV11-B	DRF
DTE20	DTA
DU11	DUA
DUP11	DPB
DV11	DVA
DX11	DXA
DZ11	DZA
DZV11	DZB
E.I.S	CPB
FP11-C(40/45)	FPA
FIS(40,LSI)	
FP11-A,B,C	FPB
GROSS TIMING	KWF
GT40	GTA
IBV11-A	IBA
ICS-11	ICA
ICR-11	ICB
INSTRUCTIONS	CPA
KE11	KEA
KG11	KGA
KIT11D	BBA
KL11	KLA
KMC11	KMC
KUV11-AA	KUA
KW11-L	KWA
KW11-K	KWD
KW11-P	KWB
KW11-W	KWC
KWV11-K	KWE
LK-11	LKA
LP11	LPA
LPA11	LPH
LP20/LP10,LP05	LPF
LPS11/LPS-KW	LPB
LPS11	LPC
LPS-VC	
LPS11	LPD
LPS-AD/NP	
LPD	LPE
M7855	BEA
BUS TESTER	
M9301	
YA	BMC
YB	BMC
YC	BMC
YD	BMC
YE	BMC
YF	BMC
YH	BMC
YJ	BMC

DEVICE/OPTION	TEST MODULE
M9301 (CONT.)	
SA	BMC
SB	BMC
M9312	BMH
M9400	BMC
YH	BMC
MR11	BMC
NC11A	NCA
NCV-11A	NCB
PA611 READER	PAA
PA611 PUNCH	PAB
PC11	PCC
PCS-11	PCS
PCL-11	PLA
RC11/RS64	RCA
RF11	RFA
RK11/RK02,03,04,05	RKA
RKV11	RKA
RK611/RK06,07	RKB
RL11/RL01/[illegible]02	RLA
RM02,03/RH11 or RH70	RMA
RM02,03 DUAL PORT/RH11 or 70	RMB
RP04,05,06 DUAL PORT/RH11	RPD
RP04,05,06 SINGLE PORT/RH11	RPB
RP11	RPA
RS03,RS04/RH11 RH11	RSA
RX01	RXA
RX02	RXB
TA11	TAA
TC11	TCA
TM02,TM03 TU16,TU16-EK,TE16,TU77	TMB
TM11	TMA
TR79F	TRA
TS04	TSA
UDC11	UDA
VS60	VSA
VSV01	VSB
VT20	VTA
VT20 on DH11	VTB
XY11	XYA
YA	BMC
YB	BMC
YC	BMC
YF	BMC
YH	BMC

3.3 DEC/X11 Device/Option Module Abstracts

The following is an alphabetized arrangement of DEC/X11 test module abstracts, which will provide the user with a complete summary of: the devices tested, the default and required parameters, and criteria for appropriate switch register coding.

OPTION MODULES

MODULE NAME: AAA
REVISION LEVEL: D
MODULE TYPE: IOMOD
I.D. NUM.: 43
DEVICES TESTED: AA11 CONTROLLER AND A VT01-A DISPLAY
DEFAULT PARAMETERS: DVA-DEFAULT
BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS: NONE
MEANING OF SR1: NONE

MODULE NAME: AA8
REVISION LEVEL: B
MODULE TYPE: IOMOD
I.D. NUM.: 123
DEVICES TESTED: AA11-K SCOPE CONTROLLER
DEFAULT PARAMETERS: DVA-170416 VCT-360 BR1-4
BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS: NONE
MEANING OF SR1: NONE

MODULE NAME: AAC
REVISION LEVEL: B
MODULE TYPE: BKMOD
I.D. NUM.: 140
DEVICES TESTED: AAV11 INTERFACE
DEFAULT PARAMETERS: DVA-170440 VCT-N/A BR1-0
BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS: LSI-11
MEANING OF SR1: NONE

MODULE NAME: ADA
REVISION LEVEL: E
MODULE TYPE: IOMOD
I.D. NUM.: 44
DEVICES TESTED: ONE AD01-D A/D CONVERTER
DEFAULT PARAMETERS: DVA-176770 VCT-130 BR1-5
BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS: NONE
MEANING OF SR1: MODIFY SR1 AS PER CONVERTER BIT LENGTH
SR1=0: DEFAULT - 10 BITS(SPREAD OF 1)
SR1=1: 11 OR 12 BITS(SPREAD OF 2)
SR1=2: 14 BITS(SPREAD OF 8)

MODULE NAME:	ADB
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	103
DEVICES TESTED:	AD11-K
DEFAULT PARAMETERS:	DVA-170400 VCT-340 BR1-6 BR2-4 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE IF SR1 = 1
MEANING OF SR1:	BIT 0 ON ENABLES USE OF KW11-K CLOCK (KWD MODULE MUST NOT BE SELECTED). BIT 1 ON ENABLES TESTING OF CHANNELS OTHER THAN 0 FOR STABLE INPUT TESTING. BIT 2 ON ENABLES TESTING OF CHANNELS OTHER THAN 0 FOR NOISE TESTING. NOTE: IF SR1 BITS 1 OR 2 EQUAL 1, SPECIAL SETUP IS REQUIRED.

MODULE NAME:	ADC
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	120
DEVICES TESTED:	ADV11
DEFAULT PARAMETERS:	DVA-170400 VCT-400 BR1-6 BR2-4 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE IF SR1=1
MEANING OF SR1:	BIT 0=1 ENABLES CLOCK OPTION BIT 1=1 ALLOWS SAMPLING OTHER CHANNELS BIT 2=1 ALLOWS NOISE TESTING FOR OTHER CHANNELS. NOTE: IF SR1 BITS 1 OR 2 EQUAL 1, SPECIAL SET UP IS REQUIRED.

MODULE NAME:	AFA
REVISION LEVEL:	E
MODULE TYPE:	IOMOD
I.D. NUM.:	51
DEVICES TESTED:	AFC11 CONVERTER, ALL 8 CHANNELS OF ANALOG MULTIPLEXER
DEFAULT PARAMETERS:	DVA-172570 VCT-134 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	ARA
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	133
DEVICES TESTED:	AR-11 A/D CONVERTER
DEFAULT PARAMETERS:	DVA-1 VCT-1 BR1-6 BR2-4 DVC-1 SR1-0
REQUIRED PARAMETERS:	ADDRESS AND VECTOR MUST BE SPECIFIED
MEANING OF SR1:	NONE

MODULE NAME:	BBA
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	62
DEVICES TESTED:	KIT11D
DEFAULT PARAMETERS:	DVA-1 VCT-1 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	ADDRESS AND VECTOR
MEANING OF SR1:	NONE

MODULE NAME:	BEA
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	73
DEVICES TESTED:	M7855 BUS-TESTERS
DEFAULT PARAMETERS:	DVA-170000 VCT-510 BR1-7 BR2-6 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME: BMC

REVISION LEVEL: N

MODULE TYPE: BKMOD

I.D. NUM.: 013

DEVICES TESTED: BOOTSTRAP ROMS (SPECIFIED BY SR1, BELOW).

DEFAULT PARAMETERS: DVA-000000 VCT-000 BR1-0
BR2-0 DVC-1 SR1-0

REQUIRED PARAMETERS: DVA-ADDR OF FIRST REQUESTED ROM.
SR1- INDICATE TYPE OF ROM.

MEANING OF SR1: SET CORRESPONDING BITS IN SR1 TO A "1" FOR THE DESIRED ROM.

GROUP A (BIT 15 MUST BE A ZERO)
BIT 0=YA
BIT 1=YB
BIT 2=MR11
BIT 3=YC
BIT 4=YF
BIT 5=YH
BIT 6=BM873 YA
BIT 7=BM873 YB
BIT 8=BM873 YC
BIT 9=BM873 YD
BIT 10=M9301 YA
BIT 11=M9301 YB
BIT 12=M9301 YC
BIT 13=BM792 YL
BIT 14=M9400(NOT YH)

GROUP B (BIT 15 MUST BE A ONE)
BIT 0=BM873 SF
BIT 1=BM873 SE
BIT 2=BM873 SC
BIT 3=M9301 SB
BIT 4=M9301 SA
BIT 5=M9301 YD
BIT 6=M9400 YH
BIT 7=M9301 YF
BIT 8=M9301 YH
BIT 9=M9301 YE
BIT 10=M9301 YJ
BIT 11=OPEN
BIT 12=OPEN
BIT 13=OPEN
BIT 14=OPEN

REMEMBER, FOR GROUP B ROMS, BIT 15 MUST

BE SET ALONG WITH ANY OTHER BITS.

MODULE NAME:	BMD
REVISION LEVEL:	C
MODULE TYPE:	BKMOD
I.D. NUM.:	143
DEVICES TESTED:	LSI-11 BDV11 ROMS/EPROMS.
DEFAULT PARAMETERS:	DVA-177520 VCT-000 BR1-0 BR2-0 DVC-1 SR1-0 ROM ADDRESS: 173000
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	BME
REVISION LEVEL:	B
MODULE TYPE:	BKMOD
I.D. NUM.:	154
DEVICES TESTED:	BM873-YF BOOTSTRAP
DEFAULT PARAMETERS:	DVA-173000 VCT-000 BR1-0 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	BMF
REVISION LEVEL:	B
MODULE TYPE:	BKMOD
I.D. NUM.:	155
DEVICES TESTED:	BM873-YH
DEFAULT PARAMETERS:	DVA-173000 VCT-000 BR1-0 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	BMG
REVISION LEVEL:	B
MODULE TYPE:	BKMOD
I.D. NUM.:	156
DEVICES TESTED:	BM873-YJ
DEFAULT PARAMETERS:	DVA-173000 VCT-000 BR1-0 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	BMH
REVISION LEVEL:	B
MODULE TYPE:	BKMOD
I.D. NUM.:	164
DEVICES TESTED:	M9312
DEFAULT PARAMETERS:	DVA-000000 VCT-000 BR1-0 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	SR1 SETTINGS
MEANING OF SR1:	SR1 SETTING FOR CROM: SR1=0 DIAGNOSTIC ROM (ADDR: 173000) SR1=1 BOOT ROM IN E-35 (ADDR: 173000) SR1=2 BOOT ROM IN E-33 (ADDR: 173200) SR1=3 BOOT ROM IN E-34 (ADDR: 173400) SR1=4 BOOT ROM IN E-32 (ADDR: 173600)

MODULE NAME:	BTA
REVISION LEVEL:	B
MODULE TYPE:	IOMODR
I.D. NUM.:	131
DEVICES TESTED:	BUS TESTER A
DEFAULT PARAMETERS:	DVA-170000 VCT-510 BR1-0 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	BTB
REVISION LEVEL:	B
MODULE TYPE:	IOMODR
I.D. NUM.:	56
DEVICES TESTED:	BUS TESTER B
DEFAULT PARAMETERS:	DVA-170020 VCT-520 BR1-0 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	CBA
REVISION LEVEL:	E
MODULE TYPE:	BKMOD
I.D. NUM.:	33
DEVICES TESTED:	CB11 SCAN
DEFAULT PARAMETERS:	DVA-000000 VCT-000 BR1-0 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	DVA- STARTING ADDR OF SCAN GROUP TO BE TESTED. SR1- NUMBER OF SCAN MODULES IN GROUP.
MEANING OF SR1:	SR1 IS SET TO THE NUMBER (OCTAL) OF SCAN MODULES IN THE TEST GROUP (MUST BE AT CONSECUTIVE ADDRESSES).

MODULE NAME:	CBB
REVISION LEVEL:	E
MODULE TYPE:	BKMOD
I.D. NUM.:	34
DEVICES TESTED:	CB11 DISTRIBUTE
DEFAULT PARAMETERS:	DVA-000000 VCT-000 BR1-0 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	DVA- ADDR OF FIRST CB11 DISTRIBUTE TO BE TESTED. SR1- NUMBER (OCTAL) OF DISTRIBUTE MODULES TO BE TESTED.
MEANING OF SR1:	SR1 MUST BE SET TO NUMBER (OCTAL) OF DISTRIBUTE MODULES TO BE TESTED (MUST BE SEQUENTIAL).

MODULE NAME:	CBC
REVISION LEVEL:	F
MODULE TYPE:	IOMOD
I.D. NUM.:	35
DEVICES TESTED:	CB11-HA
DEFAULT PARAMETERS:	DVA-164000 VCT-774 BR1-7 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	CDA
REVISION LEVEL:	G
MODULE TYPE:	IOMOD
I.D. NUM.:	14
DEVICES TESTED:	CD11 CONTROLLER AND 1 CARD READER
DEFAULT PARAMETERS:	DVA-172460 VCT-230 BR1-6 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	CPA
REVISION LEVEL:	G
MODULE TYPE:	BKMOD
I.D. NUM.:	1
DEVICES TESTED:	STRAIGHT LINE INSTRUCTION SET FOR PDP-11
DEFAULT PARAMETERS:	DVA-000000 VCT-000 BR1-0 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	CPB
REVISION LEVEL:	J
MODULE TYPE:	BKMOD
I.D. NUM.:	2
DEVICES TESTED:	EIS IN 11/40 AND 11/45
DEFAULT PARAMETERS:	DVA-000000 VCT-000 BR1-0 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	SR1 MUST BE SPECIFIED.
MEANING OF SR1:	000000 11/40, 11/45 FULL EIS 000001 11/40 WITHOUT EIS 000004 ALL EIS, USE MFPS 000005 NO EIS, USE MFPS.

MODULE NAME:	CRA
REVISION LEVEL:	F
MODULE TYPE:	IOMOD
I.D. NUM.:	15
DEVICES TESTED:	CM11 OR CR11 CONTROLLER AND ONE CARD READER
DEFAULT PARAMETERS:	DVA-177160 VCT-230 BR1-6 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	CST
REVISION LEVEL:	A
MODULE TYPE:	NBKMOD
I.D. NUM.:	177777
DEVICES TESTED:	SETS UP DEC/X11 MODULES FOR CAST
DEFAULT PARAMETERS:	DVA-000000 VCT-000 BR1- BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME: DCA

REVISION LEVEL: G

MODULE TYPE: IOMOD

I.D. NUM.: 24

DEVICES TESTED: DC11 ASYNCHRONOUS LINE INTERFACE

DEFAULT PARAMETERS: DVA-174000 VCT-300 BR1-5
BR2-0 DVC-1 SR1-0

REQUIRED PARAMETERS: NONE

MEANING OF SR1: NONE

MODULE NAME: DHA

REVISION LEVEL: L

MODULE TYPE: IOMOD

I.D. NUM: 25

DEVICES TESTED: DH11 16-LINE PROGRAMMABLE ASYNCHRONOUS MULTIPLEXER

DEFAULT PARAMETERS: DVA-1 VCT-1 BR1-5
BR2-5 DVC-1 SR1-0

REQUIRED PARAMETERS: ADDRESS AND VECTOR

MEANING OF SR1: BAUD RATE SELECTED (0=9600 DEFAULT)

MODULE NAME: DJA

REVISION LEVEL: H

MODULE TYPE: IOMOD

I.D. NUM: 36

DEVICES TESTED: DJ11 16-LINE ASYNCHRONOUS SERIAL LINE MULTIPLEXER

DEFAULT PARAMETERS: DVA-1 VCT-1 BR1-5
BR2-0 DVC-1 SR1-0

REQUIRED PARAMETERS: ADDRESS AND VECTOR

MEANING OF SR1:

FOR 5 BIT DATA SET BIT 2 (SR1=000004)
FOR 6 BIT DATA SET BIT 1 (SR1=000002)
FOR 7 BIT DATA SET BIT 0 (SR1=000001)
FOR 8 BIT DATA SET NO BITS (SR1=000000)
CHECK HARDWARE STRAPPING TO DETERMINE SR1. SET ITERATION COUNT - USED TO ADJUST PASS TIME TO

FOR 75	BAUD SET BIT 5
FOR 110	BAUD SET BIT 6
FOR 134.5	BAUD SET BIT 7
FOR 150	BAUD SET BIT 8
FOR 300	BAUD SET BIT 9
FOR 600	BAUD SET BIT 10
FOR 1200	BAUD SET BIT 11
FOR 1800	BAUD SET BIT 12
FOR 2400	BAUD SET BIT 13
FOR 4800	BAUD SET BIT 14
FOR 9600	BAUD SET BIT 15 OR NO BITS

MODULE NAME: DLA

REVISION LEVEL: I

MODULE TYPE: IOMOD

I.D. NUM.: 26

DEVICES TESTED: DL11 SINGLE LINE ASYNCHRONOUS INTERFACE

DEFAULT PARAMETERS: DVA-176500 VCT-1 BR1-4
BR2-0 DVC-1 SR1-0

REQUIRED PARAMETERS: VECTOR

MEANING OF SR1:

BIT0	BIT1	CHAR SIZE
0	0	8-BIT CHAR.
0	1	7-BIT CHAR.
1	0	6-BIT CHAR.
1	1	5-BIT CHAR.

BAUD RATE:	BIT SET
9600	NONE
7200	BIT2
4800	BIT3
2400	BIT4
1800	BIT5
1200	BIT6
600	BIT7
300	BIT8
200	BIT9
150	BIT10
134.5	BIT11
110	BIT12
75	BIT13
50	BIT14

MODULE NAME: DLB

REVISION LEVEL: 8

MODULE TYPE: IOMOD

I.D. NUM.: 161

DEVICES TESTED: DL11-E ASYNCHRONOUS COMMUNICATION
IINTERFACE

DEFAULT PARAMETERS: DVA-175610 VCT-300 BR1-4
BR2-0 DVC-1 SR1-0

REQUIRED PARAMETERS: NONE

MEANING OF SR1: TO EXERCISE THOSE STATIC TESTS REQUIRING THE USE OF THE H315 MODEM TEST CONNECTOR(MODEM CONTROL LOGIC), BIT15 OF SR1 MUST BE SET TO A "1".
NOTE: IF SR1 BIT15=1 AND THE MODEM TEST CONNECTOR IS NOT INSTALLED, FALSE ERRORS WILL BE REPORTED.

MODULE NAME:	DMB
REVISION LEVEL:	I
MODULE TYPE:	IOMOD
I.D. NUM.:	27
DEVICES TESTED:	DM11-BB 16-LINE DATASET CONTROL MULTIPLEXER
DEFAULT PARAMETERS:	DVA-1 VCT-1 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	VECTOR AND ADDRESS
MEANING OF SR1:	SR1=0 DISPLACEMENT BETWEEN VECTORS IS 2 WORDS SR1=1 DISPLACEMENT BETWEEN VECTORS IS 8 WORDS SR1=2 DISPLACEMENT BETWEEN ADDRESSES IS 16 WORDS

MODULE NAME:	DMC
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	127
DEVICES TESTED:	DMC11 SYNCHRONOUS INTERFACE
DEFAULT PARAMETERS:	DVA-1 VCT-1 BR1-5 BR2-5 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BIT0=0 LINE LOOP MODE; NO SPECIAL SETUP NECESSARY. BIT0=1 DMC RUNNING AT SPEED; A TURN AROUND CONNECTOR MUST BE INSTALLED.

MODULE NAME:	DNA
REVISION LEVEL:	G
MODULE TYPE:	IOMOD
I.D. NUM.:	37
DEVICES TESTED:	DN11 AUTOMATIC CALLING UNIT
DEFAULT PARAMETERS:	DVA-175200 VCT-001 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	VECTOR
MEANING OF SR1:	NONE

MODULE NAME:	DPA
REVISION LEVEL:	E
MODULE TYPE:	IOMOD
I.D. NUM.:	30
DEVICES TESTED:	DP11 SYNCHRONOUS INTERFACE
DEFAULT PARAMETERS:	DVA-174770 VCT-440 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	DPB
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	70
DEVCES TESTED:	DUP SYNCHRONOUS INTERFACE
DEFAULT PARAMETERS:	DVA-1 VCT-1 BR1-5 BR2-5 DVC-1 SR1-0
REQUIRED PARAMETERS:	ADDRESS AND VECTOR
MEANING OF SR1:	NONE

MODULE NAME:	DQA
REVISION LEVEL:	I
MODULE TYPE:	IOMOD
I.D. NUM.:	31
DEVICES TESTED:	DQ11 NPR COMMUNICATION DEVICE
DEFAULT PARAMETERS:	DVA-1 VCT-1 BR1-5 BR2-5 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	DRA
REVISION LEVEL:	D
MODULE TYPE:	IOMOD
I.D. NUM.:	55
DEVICES TESTED:	DR11-A I/O REG TRANSFER DEVICE
DEFAULT PARAMETERS:	DVA-167770 VCT-410 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	DRB
REVISION LEVEL:	H
MODULE TYPE:	IOMOD
I.D. NUM.:	56
DEVICES TESTED:	DR11-B DIRECT MEMORY ACCESS INTERFACE
DEFAULT PARAMETERS:	DVA-172410 VCT-124 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	DRC
REVISION LEVEL:	I
MODULE TYPE:	IOMOD
I.D. NUM.:	57
DEVICES TESTED:	DR11-C GENERAL DEVICE INTERFACE
DEFAULT PARAMETERS:	DVA-167770 VCT-1 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	VECTOR
MEANING OF SR1:	NONE

MODULE NAME:	DRD
REVISION NCME:	C
MODULE TYPE:	IOMOD
I.D. NUM.:	65
DEVICES TESTED:	DR11-K GENERAL DEVICE INTERFACE
DEFAULT PARAMETERS:	DVA-167770 VCT-1 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	VECTOR
MEANING OF SR1:	NONE

MODULE NAME:	DRE
REVISION LEVEL:	8
MODULE TYPE:	IOMOD
I.D. NUM.:	72
DEVICES TESTED:	DR11M OUTPUT, DR11L INPUT INTERFACES
DEFAULT PARAMETERS:	DVA-0 VCT-1 BR1-4 BR2-4 VCT-1 SR1-0
REQUIRED PARAMETERS:	DVA MUST BE SUPPLIED VCT, DVC, ADDR2, VECT2, SR1
MEANING OF SR1:	INDICATES WHICH DEVICES ARE CABLED TOGETHER.

MODULE NAME:	DRF
REVISION LEVEL:	F
MODULE TYPE:	IOMODX
I.D. NUM.:	121
DEVICES TESTED:	DRV11-B INTERFACES
DEFAULT PARAMETERS:	DVA-172410 VCT-124 BR1-4 BR2-0 VCT-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	DR#
REVISION LEVEL:	A
MODULE TYPE:	IOMOD
I.D. NUM.:	165
DEVICES TESTED:	DR11-W
DEFAULT PARAMETERS:	DVA-172410 VCT-124 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	DTA
REVISION LEVEL:	C
MODULE TYPE:	IOMOD
I.D. NUM.:	157
DEVICES TESTED:	DTE20
DEFAULT PARAMETERS:	DVA-174400 VCT-774 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	DUA
REVISION LEVEL:	I
MODULE TYPE:	IOMOD
I.D. NUM.:	32
DEVICES TESTED:	DU11 SYNCHRONOUS, ASYNCHRONOUS INTERFACE
DEFAULT PARAMETERS:	DVA-1 VCT-1 BR1-5 BR2-5 DVC-1 SR1-0
REQUIRED PARAMETERS:	ADDRESS AND VECTOR
MEANING OF SR1:	BIT0=0 SYNCHRONOUS TEST BIT0=1 ASYNCHRONOUS (ISOCRONOUS) TEST

MODULE NAME:	DVA
REVISION LEVEL	B
MODULE TYPE:	IOMOD
I.D. NUM.:	74
DEVICES TESTED:	UP TO 4 DV11 SYNCRONOUS INTERFACES
DEFAULT PARAMETERS:	DVA-175000 VCT-310 BR1-5 BR2-5 SR1-0
REQUIRED PARAMETERS:	SYNC MUST BE SET TO "377" FOR TESTING OF ASYNC LINE CARDS
MEANING OF SR1:	NONE

MODULE NAME:	DXA
REVISION LEVEL:	F
MODULE TYPE:	IOMODR
I.D. NUM.:	40
DEVICES TESTED:	DX11 TESTS UP TO 2 DX11B'S IN OFF-LINE MODE
DEFAULT PARAMETERS:	DVA-176200 VCT-1 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	VECTOR
MEANING OF SR1:	NONE

MODULE NAME:	DZA
REVISION LEVEL:	C
MODULE TYPE:	IOMOD
I.D. NUM.:	77
DEVICES TESTED:	DZ11
DEFAULT PARAMETERS:	DVA-1 VCT-1 BR1-5 BR2-5 DVC-1 SR1-0
REQUIRED PARAMETERS:	DVA, VCT
MEANING OF SR1:	SPECIFIES BAUD RATE. DEFAULT IS 0 = 9600

MODULE NAME:	DZB
REVISION LEVEL:	C
MODULE TYPE:	IOMOD
I.D. NUM.:	142
DEVICES TESTED:	DZV11
DEFAULT PARAMETERS:	DVA-1 VCT-1 BR1-4 BR2-4 DVC-1 SR1-0
REQUIRED PARAMETERS:	DVA, VCT
MEANING OF SR1:	SPECIFIES BAUD RATE, DEFAULT IS 0 = 9600

MODULE NAME:	FPA
REVISION LEVEL:	G
MODULE TYPE:	BKMOD
I.D. NUM.:	16
DEVICES TESTED:	11/45, 11/70 FP11-C OR LSI-11 FIS
DEFAULT PARAMETERS:	DVA-000000 VCT-000 BR1-0 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	SET SR1
MEANING OF SR1:	BIT0=0 11/45,11/70 FP11-C BIT0=1 11/40 OR LSI-11 FIS

MODULE NAME:	FPB
REVISION LEVEL:	C
MODULE TYPE:	BKMOD
I.D. NUM:	100
DEVICES TESTED:	FP11-B OR -C
DEFAULT PARAMETERS:	DVA-1 VCT-0 BR1-0 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	GTA
REVISION LEVEL:	E
MODULE TYPE:	IOMODR
I.D. NUM.:	45
DEVICES TESTED:	GT40
DEFAULT PARAMETERS:	DVA-172000 VCT-320 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	IBA
REVISION LEVEL:	D
MODULE TYPE:	IOMOD
I.D. NUM.:	141
DEVICES TESTED:	IBV11-A INSTRUMENTATION INTERFACE (IB BUS)
DEFAULT PARAMETERS:	DVA-160150, VCT-640, BR1-6 BR2-6 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BIT0=0 - RANDOM PATTERN TRANSFERS BIT0=1 - COMPLEMENT PATTERN TRANSFERS

MODULE NAME:	ICA
REVISION LEVEL:	C
MODULE TYPE:	IOMOD
I.D. NUM.:	135
DEVICES TESTED:	ICS-11
DEFAULT PARAMETERS:	DVA-771776 VCT-234 BR1-6 BR2-6 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	ICB
REVISION LEVEL:	C
MODULE TYPE:	IOMOD
I.D. NUM.:	71
DEVICES TESTED:	ICR-11 CONTROLLER
DEFAULT PARAMETERS:	DVA-171776 VCT-234 BR1-6 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1;	NONE

MODULE NAME:	KEA
REVISION LEVEL:	D
MODULE TYPE:	BKMOD
I.D. NUM.:	17
DEVICES TESTED:	KE11 OPTION ON NON 11/40, 45, AND 70
DEFAULT PARAMETERS:	DVA-177300 VCT-000 BR1-0 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	KGA
REVISION LEVEL:	D
MODULE TYPE:	BKMOD
I.D. NUM.:	41
DEVICES TESTED:	KG11 OPTION
DEFAULT PARAMETERS:	DVA-170700 VCT-000 BR1-0 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	KLA
REVISION LEVEL:	E
MODULE TYPE:	IOMOD
I.D. NUM.:	42
DEVICES TESTED:	KL11 FULL DUPLEX ASYNCHRONOUS LINE (UP TO 16)
DEFAULT PARAMETERS:	DVA-174000 VCT-300 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	KMC
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	136
DEVICES TESTED:	KMC-11
DEFAULT PARAMETERS:	DVA-1 VCT-1 BR1-5 BR2-5 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BITS 0-5: NPR/BR RATE MULTIPLIER BITS 6-11: NPR RATE MULTIPLIER BIT 12=1: RECEIVE ONLY BIT 13=1: XMIT ONLY BIT 14=1: MULTIPLY LOW DEFAULT NPR AND NPR/BR VALUES BY SR1 MULTIPLIER VALUES (BITS 6-11 AND 0-5, RESPECTIVELY) TO OBTAIN NPR AND NPR/BR RATES. BIT 15=1: USE LOW DEFAULT VALUES FOR NPR AND NPR/BR RATES (DO NOT MULTIPLY BY SR1 VALUE). BIT 14 AND BIT 15=0: USE HIGH DEFAULT VALUES FOR NPR AND NPR/BR RATES.

MODULE NAME: KUA

REVISION LEVEL: B

MODULE TYPE: NBKMOD

I.D. NUM.: 163

DEVICES TESTED: KUV11-AA

DEFAULT PARAMETERS: DVA-177540 VCT-1 BR1-0
BR2-0 DVC-1 SR1-0

REQUIRED PARAMETERS: NONE

MEANING OF SR1:
BIT0=0 LOAD MICRO CODE FOR CPB AND FPB REGARDLESS OF KUV11-AA RAM TEST RESULTS>
BIT0=1 DO NOT LOAD MICRO-CODE IF RAM TEST FAILS.
BIT1=0 TYPE ERROR MESSAGE FOR EACH RAM-TEST ERROR ENCOUNTERED.
BIT1=1 TYPE ONLY A SUMMARY OF RAM-TEST ERRORS AT END OF TEST.

MODULE NAME: KWA

REVISION LEVEL: G

MODULE TYPE: IOMOD

I.D. NUM.: 11

DEVICES TESTED: KW11-L LINE CLOCK

DEFAULT PARAMETERS: DVA-177546 VCT-100 BR1-6
BR2-0 DVC-1 SR1-0

REQUIRED PARAMETERS: NONE

MEANING OF SR1:
SR1=0 NO TIME MSG./60HZ
SR1=1 NO TIME MSG./50HZ
SR1=2 TIME MSG. EVERY 5 MIN., 60 HZ
SR1=3 TIME MSG. EVERY 5 MIN., 50 HZ
SR1=4 TIME MSG. EVERY 15 MIN., 60 HZ
SR1=5 TIME MSG. EVERY 15 MIN., 50 HZ
SR1=6 TIME MSG. EVERY 60 MIN., 60 HZ
SR1=7 TIME MSG. EVERY 50 MIN., 50 HZ

MODULE NAME: KWB

REVISION LEVEL: J

MODULE TYPE: IOMOD

I.D. NUM.: 12

DEVICES TESTED: KW11-P PROGRAMMABLE CLOCK

DEFAULT PARAMETERS: DVA-172540 VCT-104 BR1-6
BR2-0 DVC-1 SR1-0

REQUIRED PARAMETERS: NONE

MEANING OF SR1:
SR1=0 NO TIME MSG./60 HZ
SR1=1 NO TIME MSG./50 HZ
SR1=2 TIME MSG. EVERY 5 MIN., 60 HZ
SR1=3 TIME MSG. EVERY 5 MIN., 50 HZ
SR1=4 TIME MSG. EVERY 15 MIN., 60 HZ
SR1=5 TIME MSG. EVERY 15 MIN., 50 HZ
SR1=6 TIME MSG. EVERY 60 MIN., 60 HZ
SR1=7 TIME MSG. EVERY 60 MIN., 50 HZ
SR1=10 RUN AT LINE FREQ. ONLY
SR1=20 RUN AT 10K HZ FREQ. ONLY
SR1=30 RUN AT 100K HZ FREQ. ONLY

NOTE: SR1 VALUE 0 THRU 7 MAY BE USED WITH SR1 VALUES 10, 20 AND 30 TO OBTAIN MESSAGE PRINTOUTS AT A FIXED FREQUENCY.

MODULE NAME:	KWC
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	134
DEVICES TESTED:	KW11-W WATCHDOG TIMER
DEFAULT PARAMETERS:	DVA-172400 VCT-1 BR-7 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	VECTOR ADDRESS
MEANING OF SR1:	NONE

MODULE NAME:	KWD
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	102
DEVICES TESTED:	KW11-K
DEFAULT PARAMETERS:	DVA-170404 VCT-344 BR1-6 BR2-6 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	USED FOR SELECTIVE TESTING OF PARTICULAR FREQUENCIES. (SET TO 0 TO ENABLE, 1 TO DISABLE) BIT FREQUENCY 0 1MHZ 1 100KHZ 2 10KHZ 3 1KHZ 4 100HZ 5 RANDOM(overrides any disable settings) 6 LINE FREQUENCY 7 OVERFLOW B(OVERRIDES ANY DISABLE SETTINGS)

MODULE NAME:	KWE
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	122
DEVICES TESTED:	KWV11K
DEFAULT PARAMETERS:	DVA-170420, VCT-440, BR1-6 BR2-6 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	USED FOR SELECTIVE TESTING OF PARTICULAR FREQUENCIES. (SET TO 0 TO ENABLE, 1 TO DISABLE) BIT FREQUENCY 0 1MHZ 1 100KHZ 2 10KHZ 3 1KHZ 4 100HZ 5 RANDOM 6 LINE FREQUENCY

MODULE NAME:	KWF
REVISION LEVEL:	B
MODULE TYPE:	NBKMOD
I.D. NUM.:	162
DEVICES TESTED:	KW11-L ON 2040 PDP-11 CONSOLE
DEFAULT PARAMETERS:	DVA-177546, VEC-100, BR1-6 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	AVERAGE TIMER COUNT SR1=0: MODULE USES DEFAULT TIMER COUNT OF 000037(KD11-A CPU) SR1 NOT 0: MODULE USES CONTENTS OF SR1 AS TIMER COUNT

MODULE NAME:	LKA
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	101
DEVICES TESTED:	LK11
DEFAULT PARAMETERS:	DVA-160060 VCT-360 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	LPA
REVISION LEVEL:	F
MODULE TYPE:	IOMOD
I.D. NUM.:	3
DEVICES TESTED:	1 LP11 CONTROLLER AND ANY LP11 LINEPRINTER
DEFAULT PARAMETERS:	DVA-177514 VCT-200 BR1-4 BR2-0 DVC-1 SR1-0 SR2-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	THE 16 SR1 BITS HAVE THE FOLLOWING FUNCTIONS: X PPP PPP PPP XXX AAA AAA = (0) FOR 80 COLUMNS, 64 CHARACTERS (1) FOR 80 COLUMNS, 96 CHARACTERS (2) FOR 132 COLUMNS, 64 CHARACTERS (3) FOR 132 COLUMNS, 96 CHARACTERS PPP PPP PPP = RELATIVE PAUSE SIZE PER PASS, I.E., AS EACH BIT OF THE RELATIVE PAUSE SIZE(PPP PPP PPP) IS SET, FROM LSB TO MSB, THE NUMBER OF LINES TO BE PRINTED IS REDUCED BY ONE HALF. (000) = ALL LINES (ALSO IF SR2 NE 0) (001) = 100(8) LINES PRINTED (002) = 040(8) LINES PRINTED (004) = 020(8) LINES PRINTED . . . (100) = 001(8) LINES PRINTED X = UNUSED BIT
MEANING OF SR2:	NON ZERO TO ELIMINATE PAUSE FUNCTION SET TO NON-ZERO IF LINE PRINTER IS LP04 (NO PAUSE ALLOWED).

MODULE NAME:	LPB
REVISION LEVEL:	F
MODULE TYPE:	IOMOD
I.D. NUM.:	46
DEVICES TESTED:	LPS11 CONTROLLER AND 1 LPSKW CLOCK
DEFAULT PARAMETERS:	DVA-170404 VCT-001 BR1-6 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	VECTOR ADDRESS MUST BE SUPPLIED.
MEANING OF SR1:	NONE

MODULE NAME:	LPC
REVISION LEVEL:	E
MODULE TYPE:	IOMOD
I.D. NUM.:	47
DEVICES TESTED:	LPS11 CONTROLLER AND 1 LPS-VC SCOPE CONTROL
DEFAULT PARAMETERS:	DVA-170416 VCT-001 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	VECTOR ADDRESS MUST BE SUPPLIED
MEANING OF SR1:	NONE

MODULE NAME:	LPD
REVISION LEVEL:	F
MODULE TYPE:	IOMOD
I.D. NUM.:	50
DEVICES TESTED:	LPS11 INTERFACE AND 1 LPSAD OR LPS-N? CONTROLLER
DEFAULT PARAMETERS:	DVA-170400 VCT-1 BR1-6 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	ADDRESS AND VECTOR
MEANING OF SR1:	BIT15=1 DMA CONVERSIONS(LPSADNP) BIT15=0 BR CONVERSIONS(LPSAD12)

MODULE NAME:	LPE
REVISION LEVEL:	C
MODULE TYPE:	IOMOD
I.D. NUM.:	63
DEVICES TESTED:	LPD PHOTO-COMP INTERFACES
DEFAULT PARAMETERS:	DVA-172710 VCT-320 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	LPF
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	160
DEVICES TESTED:	LPA11
DEFAULT PARAMETERS:	DVA-175400 VCT-754 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	SR1 SETUP
MEANING OF SR1:	SR1(LO BYTE) BIT02 IS USED TO SPECIFY THE TYPE OF CHARACTER SET. IF IT IS A "1" IT INDICATES A 64 CHARACTER SET.-ANY OTHER COMBINATION IN THE LO BYTE SIGNIFIES A 96 CHARACTER SET. SR1(HI BYTE) THE HIGH BYTE SPECIFIES PRINTING OPTIONS AS SHOWN BELOW: SR1+1=0 PRINT ON 1ST PASS ONLY SR1+1=1 NEVER PRINT SR1+1=2 PRINT ON ALL PASSES

MODULE NAME:	LPH
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	152
DEVICES TESTED:	IOMOD LPA11-XX A/D INTERFACE
DEFAULT PARAMETERS:	DVA-170460 VCT-300 BR1-6 BR2-6 DVC-1 SR1-0
REQUIRED PARAMETERS:	LPA11-XX(KMC-11, M8200-YC, M8254, CLOCK) REMOVE OUTPUTS FROM DR11K'S IF CONFIGURED (VIA SR1). IF LPH IS INCLUDED IN YOUR RUNTIME EXERCISER, THEN LPI OR LPG MUST BE INCLUDED.
MEANING OF SR1:	STATES WHAT DEVICES ARE ON THE I/O BUS. SET THE BITS FOR THE DEVICES CONFIGURED

DEVICE	BIT
1ST AD11K	0
1ST KW11K	1
1SR DR11K	2
1ST AA11K	3
2ND AD11K	4
2ND DR11K	5
N/A	6
3RD DR11K	7
4TH DR11K	8
5TH DR11K	9
AR11K	10
LPS-11	11
LPSAD (LPS A/D)	12
LPSKW (LPS REAL TIME CLOCK)	13
LPSVC (LPS D/A)	14
LPSDR (LPS DIGITAL I/O)	15

MODULE NAME:	MNA
REVISION LEVEL:	A
MODULE TYPE:	IOMOD
I.D. NUM.:	0
DEVICES TESTED:	MNCAD (A/D) MINC MODULE
DEFAULT PARAMETERS:	DVA-171000 VCT-400 BR1-6 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BIT0=0 INHIBIT USE OF MNCKW OPTION BIT0=1 ENABLE USE OF MNCKW OPTION. "MNC" MUST BE DESELECTED IF CONFIGURED, AND ONLY ONE MNCAD WILL BE RUN. BIT1=0 INHIBIT SAMPLING ADDITIONAL CHANNELS FOR STABLE INPUT. BIT1=1 ENABLE SAMPLING CHANNEL ZERO THRU CHANNEL SPECIFIED IN LOCATION CLSTCH (RELATIVE 224) FOR STABLE INPUT (+1-) TOLERANCE SPECIFIED BY OFFAL (RELATIVE 226). BIT2=0 USE CHANNEL ZERO ONLY FOR NOISE TESTING. BIT2=1 USE CHANNEL ZERO THRU CHANNEL SPECIFIED IN NLSTCH (RELATIVE 230) FOR NOISE TESTING.
OPTIONS:	LOCATIONS IN MODULE FOR SPECIFYING LIMITS ARMLIM (RELATIVE 232): SPECIFIES RMS NOISE LIMIT. APKLIM (RELATIVE 234): SPECIFIES PEAK NOISE LIMIT.

MODULE NAME:	MNB
REVISION LEVEL:	A
MODULE TYPE:	IOMOD
I.D. NUM.:	0
DEVICES TESTED:	MNCDI (DIGITAL IN) MINC MODULE
DEFAULT PARAMETERS:	DVA-171160 VCT-130 BR1-4 BR1-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	IF SR1=1 THEN: $BASE1 (RELATIVE 224) = MNCDO ADDRESS $VECT1 (RELATIVE 226) = MNDCO VECTOR
DEVICE SETUP:	FRONT PANEL SWITCHES MUST BE DOWN. IF SR1=1 THEN THE WRAP-AROUND CABLE TO THE MNCDO DEVICE, AND MNE MUST BE DESELECTED IF IT IS CONFIGURED.
MEANING OF SR1:	BIT0=0 RUN MNCDI LOGIC TEST BIT0=1 RUN MNCDI LOGIC TEST RUN MNCDO LOGIC TEST RUN MNCDO TO MNCDI CONTROL AND DATA TESTS

MODULE NAME:	MNC
REVISION LEVEL:	A
MODULE TYPE:	IOMOD
I.D. NUM.:	0
DEVICES TESTED:	MNCKW (CLOCK) MINC MODULE
DEFAULT PARAMETERS:	DVA-171020 VCT-440 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
DEVICE SETUP:	THE FRONT PANEL SWITCHES MUST SELECT THE SCHMITT TRIGGER INPUT (PULL OUT "ST1" AND "ST2" AND ROTATE TO THE END).
MEANING OF SR1:	SELECTS TEST FREQUENCIES. A '1' DISABLES TESTING. BIT0=1MHZ BIT1=100KHZ BIT2=10KHZ BIT3=1KHZ BIT4=100HZ BIT5=RANDOM FREQUENCY (OVERRIDES DESELECTION OF ANY FREQUENCY).

MODULE NAME:	MND
REVISION LEVEL:	A
MODULE TYPE:	BKMOD
I.D. NUM.:	0
DEVICES TESTED:	MNCDA (D/A) MINC MODULE
DEFAULT PARAMETERS:	DVA-171060 VCT-0 BR1-0 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	MNE
REVISION LEVEL:	A
MODULE TYPE:	IOMOD
I.D. NUM.:	0
DEVICES TESTED:	MNCDO (DIGITAL OUT) MINC MODULE
DEFAULT PARAMETERS:	DVA-171260 VCT-340 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	NCA
REVISION LEVEL:	D
MODULE TYPE:	IOMODR
I.D. NUM.:	66
DEVICES TESTED:	NC-11A INTERFACE
DEFAULT PARAMETERS:	DVA-164000 VCT-270 BR1-7 BR2-0 DVC-1 SR1-0
MEANING OF SR1:	BIT0=1 INHIBIT WORD INCREMENT MODE BIT1=1 INHIBIT ODD BYTE INCREMENT MODE BIT2=1 INHIBIT EVEN BYTE INCREMENT MODE BIT3=1 INHIBIT LIST MODE

MODULE NAME:	NCB
REVISION LEVEL:	A
MODULE TYPE:	IOMODX
I.D. NUM.:	0
DEVICES TESTED:	NCV-11A INTERFACE
DEFAULT PARAMETERS:	DVA-172760 VCT-370 BR1-6 BR2-0 DVC-1 SR1-0
MEANING OF SR1:	BIT0=1 INHIBIT MATRIX WORD INCREMENT MODE BIT1=1 INHIBIT LIST MODE

MODULE NAME:	PAA
REVISION LEVEL:	F
MODULE TYPE:	IOMOD
I.D. NUM.:	53
DEVICES TESTED:	UP TO 16 PA611 TYPESET READERS
DEFAULT PARAMETERS:	DVA-172600 VCT-300 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	PAB
REVISION LEVEL:	F
MODULE TYPE:	IOMOD
I.D. NUM.:	54
DEVICES TESTED:	UP TO 16 PA611 TYPESET PUNCHES
DEFAULT PARAMETERS:	DVA-172700 VCT-000 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	VECTOR ADDRESS MUST BE SUPPLIED BIT X OF 0 THROUGH 7
MEANING OF SR1:	SET = DISABLE PUNCHING ON THAT DATA CHANNEL. CLEAR = ALLOW PUNCHING ON THAT DATA CHANNEL.

MODULE NAME:	PCC
REVISION LEVEL:	C
MODULE TYPE:	IOMOD
I.D. NUM.:	20
DEVICES TESTED:	ONE PC11 READER AND PUNCH
DEFAULT PARAMETERS:	DVA-177550 VCT-070 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	SET SR1
MEANING OF SR1:	SR1=000000 READER ONLY SR1=000001 PUNCH ONLY SR1=000002 READER AND PUNCH

MODULE NAME:	PCS
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	147
DEVICES TESTED:	PCS CONTROLLER AND FILE BOX IOCM CONTROL MODULE WITH FILE BOX
DEFAULT PARAMETERS:	DVA-171376 VCT-234 BR1-0 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE

MODULE NAME:	PLA
REVISION LEVEL:	B
MODULE TYPE:	IOMODX
I.D. NUM.:	0
DEVICES TESTED:	PCL11 INTER-PROCESSOR COMMUNICATION DEVICE.
DEFAULT PARAMETERS:	DVA-164200 VCT-170 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	SETUP OF SR1
MEANING OF SR1:	BIT15=0 IF RETRY LIMIT EXCEEDED, RESET RETRY LIMIT AND CONTINUE. BIT15=1 IF RETRY LIMIT EXCEEDED, ASSUME HARD ERROR AND DROP MODULE. BITS<7:0> RECEIVER TOM BUS ADDRESS(RECEIVER NUMBER) THIS IS OCTAL NUMBER BETWEEN 1 AND 37.

MODULE NAME:	RCA
REVISION LEVEL:	D
MODULE TYPE:	IOMODX
I.D. NUM.:	21
DEVICES TESTED:	RC11 CONTROLLER AND UP TO 4 RS64 DISKS
DEFAULT PARAMETERS:	DVA-177440 VCT-210 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	RFA
REVISION LEVEL:	G
MODULE TYPE:	IOMODX
I.D. NUM.:	4
DEVICES TESTED:	RF11 CONTROLLER AND UP TO 8 RS11 DISKS
DEFAULT PARAMETERS:	DVA-177460 VCT-204 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BIT0=0 DRIVE DROPPED IF RETRY COUNT EXCEEDED ON HARD ERROR. BIT0=1 FUNCTION ABORTED IF RETRY LIMIT EXCEEDED ON HARD ERROR. BIT1=0 DRIVE DROPPED IF RETRY COUNT EXCEEDED ON SOFT ERROR. BIT1=1 FUNCTION ABORTED IF RETRY EXCEEDED ON SOFT ERROR. BIT2=0 DON'T TYPE DATA LATE ERRORS. BIT2=1 TYPE DATA LATE ERRORS.

MODULE NAME:	RKA
REVISION LEVEL:	G
MODULE TYPE:	IOMODX
I.D. NUM.:	5
DEVICES TESTED:	RK11 CONTROLLER AND UP TO 8 DISK DRIVES OF FOLLOWING TYPE: RK02,RK03,RK04,RK05
DEFAULT PARAMETERS:	DVA-177400 VCT-220 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BIT0=0 FUNCTION ABORTED IF RETRY EXCEEDED ON HARD OR SOFT ERROR. BIT0=1 DRIVE DROPPED IF RETRY COUNT EXCEEDED ON HARD OR SOFT ERROR. BIT2=0 WILL NOT TYPE OUT DATA LATE ERRORS BUT WILL KEEP TRACK OF THE NUMBER OF DATA LATE ERRORS BIT2=1 TYPE OUT DATA LATE ERRORS AND KEEP TRACK OF THE NUMBER OF DATA LATE ERRORS IN "DLTCNT"

MODULE NAME:	RKB
REVISION LEVEL:	E
MODULE TYPE:	IOMODX
I.D. NUM.:	124
DEVICES TESTED:	RK611, RK06
DEFAULT PARAMETERS:	DVA-177400 VCT-210 BR1-5 BR2-0 DVC-1 SR0-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BIT 0 SET(1): IF THE RETRY LIMIT IS EXCEEDED ON ANY FUNCTION, A HARD ERROR IS ASSUMED AND THE DRIVE IS DROPPED BIT 0 CLEAR(0): IF THE RETRY LIMIT IS EXCEEDED, THE FUNCTION IS ABORTED AND THE TESTING CONTINUES BIT 2 SET(1): ON ENCOUNTERING A BAD SECTOR, PRINT A MESSAGE EVEN IN BAD SECTOR LIST. BIT 2 CLEAR(0): ON ENCOUNTERING A BAD SECTOR, ONLY PRINT MESSAGE IF BAD SECTOR IS NOT IN BAD SECTOR LIST. BIT 4 SET(1): WILL EXERCISE PORT B IN DUAL PORT MODE BIT 4 CLEAR(0): SINGLE PORT MODE OR PORT A IN DUAL PORT MODE BIT 6 SET(1): WRITE/READ DATA STARTING AT A RANDOM SECTOR BIT 6 CLEAR(0): WRITE/READ DATA STARTING AT EVERY THIRD SECTOR BIT 7 SET(1): DUAL PORT MODE SELECTED BIT 7 CLEAR(0): SINGLE PORT MODE SELECTED

MODULE NAME:	RLA
REVISION LEVEL:	C
MODULE TYPE:	IOMODX
I.D. NUM.:	146
DEVICES TESTED:	RL11, RL01
DEFAULT PARAMETERS:	DVA-174400 VCT-160 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BIT 0 SET(1): DROP DRIVE ON ERROR. BIT 0 CLEAR(0): CONTINUE TESTING ON ERROR. BIT 1 SET(1): WRITE/READ DATA AT A RANDOM SECTOR. BIT 1 CLEAR(0): WRITE/READ DATA AT INCREMENTAL SECTOR. BIT 2 SET(1): DO NOT PRINT SOFT ERRORS BIT 2 CLEAR(0): PRINT SOFT ERRORS.

MODULE NAME:	RMA
REVISION LEVEL:	D
MODULE TYPE:	IOMODX
I.D. NUM.:	144
DEVICES TESTED:	RM03 DISC WITH RH11 OR RH70 CONTROLLER
DEFAULT PARAMETERS:	DVA-176700 VCT-254 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BIT 0=1 EXCEED RETRY LIMIT, DROP DRIVE BIT 0=0 EXCEED RETRY LIMIT, CONTINUE BIT 2=1 COUNT DATA LATE ERRORS BUT DON'T TYPE THEM. BIT 2=0 COUNT AND TYPE OUT DATA LATE ERRORS. BIT 5=1 PACK FORMATTED FOR 18 BITS BIT 5=0 PACK FORMATTED FOR 16 BITS BIT 15=1 32 REGISTER ON RH70 BIT 15=0 22 REGISTERS ON RH70

MODULE NAME:	RMB
REVISION LEVEL:	C
MODULE TYPE:	IOMODX
I.D. NUM.:	145
DEVICES TESTED:	RM03 DISC WITH RH11, CONTROLLER DUAL PORT
DEFAULT PARAMETERS:	DVA-176700 VCT-254 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BIT 2=1 COUNT DATA LATE ERRORS BUT DON'T TYPE THEM. BIT 2=0 COUNT AND TYPE OUT DATA LATE ERRORS BIT 4=1 B PORT PROGRAM MODULE BIT 4=0 A PORT PROGRAM MODULE

MODULE NAME: RPA

REVISION LEVEL: M

MODULE TYPE: IOMODX

I.D. NUM.: 6

DEVICES TESTED: RP11 CONTROLLER AND UP TO 8 DRIVES

DEFAULT PARAMETERS: DVA-176710 VCT-254 BR1-5
BR2-0 DVC-1 SR1-0

REQUIRED PARAMETERS: NONE

MEANING OF SR1:

BIT0=0 IF LOW DENSITY
BIT0=1 IF HIGH DENSITY
BIT1=0 DROPS MODULE AFTER 3 UNRECOVERABLE ERRORS
BIT1=1 GOES ON TO NEXT BLOCK AFTER AN UNRECOVERABLE ERROR
BIT2=0 WILL TYPEOUT DATA LATE ERRORS BUT KEEPS A TOTAL COUNT IN LOCATION DLTCNT
BIT2=1 WILL NOT TYPEOUT DATE LATE ERRORS AND WILL NOT KEEP COUNT OF THEM.

THERE IS A TABLE AT LOCATION "BADLOC" IN WHICH UP TO 20 CYLINDER-TRACK COMBINATIONS MAY BE ENTERED. FOR ANY CYL-TRK LISTED IN THAT TABLE, THERE WILL BE NO ERRORS REGISTERED. THIS IS INTENDED FOR USE WITH PACKS WITH KNOWN BAD SPOTS. REFER TO THE LISTING AT LOCATION BADLOC FOR DIRECTIONS ON HOW TO ENTER DISC ADDRESSES INTO THE TABLE.

NOTE: ANY ADDRESS ENTERED IN THIS TABLE WILL APPLY TO ALL DISKS UNDER TEST.

MODULE NAME: RPB

REVISION LEVEL: I

MODULE TYPE: IOMODX

I.D. NUM.:

DEVICES TESTED: ONE RH11 CONTROLLER AND UP TO 8 RP04, RP05, OR RP06 DRIVES

DEFAULT PARAMETERS: DVA-176700 VCT-254 BR1-5
BR2-0 DVC-1 SR1-0

REQUIRED PARAMETERS: NONE

MEANING OF SR1:

BIT0 SET(1):
IF THE RETRY LIMIT IS EXCEEDED ON ANY FUNCTION, A HARD ERROR IS ASSUMED AND THE DRIVE IS DROPPED

BIT0 CLEAR(0):
IF THE RETRY LIMIT IS EXCEEDED, THE FUNCTION IS ABORTED AND THE TESTING CONTINUES

BIT2 SET(1):
COUNT DATA LATE ERRORS BUT DO NOT TYPE THEM OUT

BIT2 CLEAR(0):
TYPE OUT DATA LATE ERRORS AND COUNT THEM

BIT5 CLEAR (0): ;NORMAL FOR RP04 PACKS THAT ARE FORMATTED FOR 16 BIT MODE (PDP-11)

BIT5 SET (1): ;FOR RP04 18 BIT FORMATTED PACKS

MODULE NAME:	RPD
REVISION LEVEL:	B
MODULE TYPE:	IOMODX
I.D. NUM.:	104
DEVICES TESTED:	ONE DUAL-PORTED RP04, 05, OR 06 DISK DRIVE
DEFAULT PARAMETERS:	DVA-176700 VCT-254 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	BIT4 OF SR1 MUST BE SET TO TEST THE B-PORT SIDE
MEANING OF SR1:	BIT2=0 TYPE OUT AND COUNT DATA LATE ERRORS BIT2=1 COUNT DATA LATE ERRORS, BUT DO NOT TYPE OUT BIT4=0 TEST A PORT BIT4=1 TEST B PORT

MODULE NAME:	RSA
REVISION LEVEL:	I
MODULE TYPE:	IOMODX
I.D. NUM.:	61
DEVICES TESTED:	ONE RH11 CONTROLLER AND UP TO 8 RS03 AND RS04 DISKS
DEFAULT PARAMETERS:	DVA-172040 VCT-204 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BIT0 =0 ABORTS FUNCTION ON RETRY LIMIT EXCEEDED. BIT0 =1 DRIVE DROPPED ON RETRY LIMIT EXCEEDED. BIT2 =0 WILL TYPE OUT DATA-LATE ERRORS BIT2 =1 WILL NOT TYPE OUT DATA-LATE ERRORS

MODULE NAME:	RXA
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	67
DEVICES TESTED:	RX01 FLOPPY DISK
DEFAULT PARAMETERS:	DVA-177170 VCT-264 BR1-5 BR2-0 DVC-2 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BIT0=0 IF RETRY LIMIT IS EXCEEDED, CONTINUE WITH NEXT TEST. BIT0=1 IF RETRY LIMIT IS EXCEEDED ON ANY FUNCTION, REPORT A HARD ERROR AND DROP MODULE. BIT1=0 USE ALTERNATING DATA PATTERNS OF ONES AND ZEROS. BIT1=1 USE DECREMENTING DATA PATTERNS STARTING WITH A RANDOM NUMBER.

MODULE NAME:	RXB
REVISION LEVEL:	B
MODULE TYPE:	IOMODX
I.D. NUM.:	137
DEVICES TESTED:	RX02 FLOPPY DISK
DEFAULT PARAMETERS:	DVA-177170 VCT-264 BR1-5 BR2-0 DVC-2 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BIT0=0 IF RETRY LIMIT IS EXCEEDED, CONTINUE WITH NEXT TEST. BIT0=1 IF RETRY LIMIT IS EXCEEDED ON ANY FUNCTION, REPORT A HARD ERROR AND DROP MODULE.

MODULE NAME:	TAA
REVISION LEVEL:	D
MODULE TYPE:	IOMOD
I.D. NUM.:	7
DEVICES TESTED:	TA11 CONTROLLER AND 2 CASSETTE DRIVES
DEFAULT PARAMETERS:	DVA-177500 VCT-260 BR1-6 BR2-0 DVC-2 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	TCA
REVISION LEVEL:	G
MODULE TYPE:	IOMODX
I.D. NUM.:	10
DEVICES TESTED:	TC11 DECTAPE CONTROLLER AND UP TO 8 DECTAPE DRIVES
DEFAULT PARAMETERS:	DVA-177340 VCT-214 BR1-6 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	SR BIT0=0 LETS MODULE SKIP FORWARD AFTER RETRY LIMIT HAS BEEN REACHED. SR BIT0=1 CAUSES DEVICE TO BE DROPPED IF RETRY LIMIT IS REACHED.

MODULE NAME:	TMA
REVISION LEVEL:	J
MODULE TYPE:	IOMODX
I.D. NUM.:	22
DEVICES TESTED:	TM11 CONTROLLER AND UP TO 8 DRIVES
DEFAULT PARAMETERS:	DVA-172520 VCT-224 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BIT0=0 CONTINUE IF RETRY LIMIT IS EXCEEDED. BIT0=1 DROP MODULE IF RETRY LIMIT IS EXCEEDED.

MODULE NAME:	TMB
REVISION LEVEL:	K
MODULE TYPE:	IOMODX
I.D. NUM.:	130
DEVICES TESTED:	TM02/TM03 CONTROLLER AND UP TO 8 TU16 OR TE16(OR UP TO 4 TU77)
DEFAULT PARAMETERS:	DVA-172440 VCT-224 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BIT0=0 ABORT FUNCTION IF RETRY LIMIT IS EXCEEDED BIT0=1 SLAVE IS DROPPED IF RETRY LIMIT IS EXCEEDED BIT1=0 ALL SLAVES AUTOMATICALLY FOUND BIT1=1 SLAVES MUST BE SELECTED BY OPERATOR BIT2=0 ONLY REPORT SOFT ERROR IF RETRY LIMIT IS EXCEEDED. BIT2=1 PRINT SOFT ERROR ON OCCURRENCE BIT3=0 USE DEFAULT RETRY LIMITS BIT3=1 USE ALTERNATE RETRY LIMIT BIT4=0 PRINT SOFT ERROR SUMMARY AT EOT BIT4=1 SUPPRESS SOFT ERROR SUMMARY PRINTOUT. BIT5=0 ALTERNATE DENSITY ONLY AT BOT. BIT5=1 ALTERNATE DENSITY EACH CYCLE. BIT6=0 TEST 1600 BPI BIT6=1 DO NOT TEST 1600 BPI BIT7=0 TEST 800 BPI BIT7=1 DO NOT TEST 800 BPI

MODULE NAME:	TRA
REVISION LEVEL:	C
MODULE TYPE:	IOMOD
I.D. NUM.:	125
DEVICES TESTED:	TR79F TAPE DRIVES
DEFAULT PARAMETERS:	DVA-164000 VEC-170 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BIT0=1 CAUSES DRIVE EXCEEDING RETRY LIMIT TO BE DROPPED. BIT0=0 IF THE RETRY LIMIT EXCEEDED, FUNCTION DROPPED AND TESTING CONTINUES

MODULE NAME:	TSA
REVISION LEVEL:	A
MODULE TYPE:	IOMODX
I.D. NUM.:	163
DEVICES TESTED:	TS11/TS04 TAPE SUBSYSTEM
DEFAULT PARAMETERS:	DVA-172520 VCT-224 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	BIT0=0 IF AN UNRECOVERABLE ERROR OCCURS ON ANY FUNCTION, THE FUNCTION IS ABORTED AND TESTING CONTINUES BIT0=1 IF AN UNRECOVERABLE ERROR OCCURS ON ANY FUNCTION, THE DEVICE IS DROPPED FROM THE TEST CYCLE BIT1=0 ALL RECOVERABLE ERRORS ARE REPORTED BIT1=1 RECOVERABLE ERRORS ARE NOT REPORTED

MODULE NAME:	UDA
REVISION LEVEL:	D
MODULE TYPE:	IOMOD
I.D. NUM.:	52
DEVICES TESTED:	UDC11 CONTROLLER (MAINTENANCE MODE)
DEFAULT PARAMETERS:	DVA-171774 VCT-234 BR1-6 BR2-4 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	VSA
REVISION LEVEL:	C
MODULE TYPE:	IOMODP
I.D. NUM.:	75
DEVICES TESTED:	DECGRAPHIC-11 DISPLAY SYSTEM AND VS60 CONSOLE
DEFAULT PARAMETERS:	DVA-172000 VCT-320 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	SR1=0 EXECUTE VS60 INSTRUCTIONS SR1=1 EXECUTE NOP'S FOR HIGHEST NPR RATE

MODULE NAME:	VSB
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM:	76
DEVICES TESTED:	VSV01 DISPLAY SYSTEM
DEFAULT PARAMETERS:	DVA-172600 VCT-360 BR1-4 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE THE NUMBER OF BIT MAPS.
MEANING OF SR1:	NONE

MODULE NAME:	VTA
REVISION LEVEL:	B
MODULE TYPE:	IOMOD
I.D. NUM.:	64
DEVICES TESTED:	VT20 SYSTEMS
DEFAULT PARAMETERS:	DVA-175610 VCT-340 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

MODULE NAME:	VTB
REVISION LEVEL:	B
MODULE TYPE:	IOMODX
I.D. NUM.:	126
DEVICES TESTED:	VT20'S ON DH11
DEFAULT PARAMETERS:	DVA-160020 VCT-350 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	BAUD RATES IN L08R TO L17BR IF NOT 9600
MEANING OF SR1:	NONE

MODULE NAME:	XYA
REVISION LEVEL:	D
MODULE TYPE:	IOMOD
I.D. NUM.:	23
DEVICES TESTED:	ONE XY11 PLOTTER
DEFAULT PARAMETERS:	DVA-172554 VCT-120 BR1-5 BR2-0 DVC-1 SR1-0
REQUIRED PARAMETERS:	NONE
MEANING OF SR1:	NONE

4.0 DEC/X11 RELEASE, DISTRIBUTION, AND UPDATE NOTES

The following four subsections provide information related to current release data, media distribution, monitor library and test module updates, and special environmental considerations (e.g., APT, XXDP+, ACT, etc.) for the operation of DEC/X11 Software.

4.1 Current Releases (Monitor Library, Config/Linker)

The current release of DEC/X11 Software and Documentation is as follows:

CXMONA - MONITOR LIBRARY

CHUXCA - CONFIGURATOR/LINKER

CXQUAB - DEC/X11 USER'S MANUAL

FOR OPTION MODULES REFER TO OPTION MODULE ABSTRACT SECTION OF THIS MANUAL.

4.2 DEC/X11 Distribution

DEC/X11 software is distributed on XXDP+ media (except TU-60 cassette) and also Papertape (except the Configurator/Linker). Refer to XXDP+ USER'S MANUAL for media names.

4.3 Monitor And Module Release Notes

SPECIAL NOTE: All RTE's configured using monitor CXMONA? MUST include at least one BKMOD unless patch CXMONA2 is used !!!!

The following locations can be changed by the operator:

Loc. 1044 contains the relocation constant. Must be in PAR format(e.g.,200 = 4K). Default is to 4K.
Loc. 1110 contains the maximum number of hard errors allowed before an option module is dropped. Default value is 20 errors.
Loc. 1112 contains the maximum number of soft errors allowed before an option module is dropped. Default value is 40 soft errors.
Loc. 1114 contains the maximum allowed time between end-of-passes per option module. Default value is 15 minutes.

ECC Memory:
If ECC memory exists on the system, ECC will be controlled in the following manner:
POFF Command turns off ECC and Disables TRAPS.
PON Command turns on ECC and Enables TRAPs.

In order to turn on either ECC or TRAP, but not both, you must modify the contents of locations PONOF+266 and PONOF+272(PONOF can be found in the Load Map), to one of the following values:

	Trap On Trap Off ECC Off ECC On
Loc. PONOF+266	000000 000001
Loc. PONOF+272	000003 000000

Important: After modifying these locations you must type a POFF command followed by a PON command, so that the ECC Memory is actually in the desired state.

In addition if the ECC Memory is an 11/70 MK11 with the Memory's CSR not in the I/O Page and monitor E or I is used then ICSR00+126 and ICSR00+132 must be modified as follows:

	TRAP On TRAP Off ECC Off ECC ON
Loc. ICSR00+126	000000 000001
Loc. ICSR00+132	000003 000000

SBKMOD and NBKMOD modules' cannot not be deselected while they are activiely running(selected and active).

4.4 Special Environments

There are two special environments under which a DEC/X11 exerciser program may be run in which operational differences will be encountered. They are: (1) when running an RTE as a chain file under the control of an XXDP+ monitor and (2) when running an RTE under control of an APT monitor. The following material describes the differences.

4.4.1 XXDP+ Chain Mode

The following material assumes that the user is familiar with XXDP+ Chain Mode operations as described in the XXDP+ USER'S MANUAL. When a DEC/X11 Run Time Exerciser(RTE) program(filename.BIC) is included in an XXDP+ chain file(Filename.CCC), the loading, starting, and execution of the RTE incurs the following changes.

1. When the XXDP+ monitor is loaded and chain mode is initiated(via .C Filename), the RTE file will eventually be automatically executed(i.e., a RUN command will not be required).

2. When an RTE is running in chain mode, all RTE keyboard commands will operate in the same manner described for stand-alone operation.

3. As with all programs run in chain mode, the RTE must periodically return to the XXDP+ monitor. However, a return will only occur when the RTE is in lowest memory(due to relocation or not) and a system-end-of-pass occurs(i.e., all I/O option modules have individually completed an end-of-pass). When the proper number of returns have been made(as defined by an XXDP+ pass-count), the XXDP+ monitor will terminate the execution of the RTE and initiate the execution of the next program in the chain file.

   Thus a return is caused under the following coditions:

   (a) If a Memory Management option(KT) is not available(or disabled), the RTE cannot be relocated and will, therefore, remain in lowest memory. Thus, a system-end-of-pass will cause a return to the XXDP+ monitor.

   (b) If the KT is both available and enabled, the RTE will relocate through memory as described in the DEC/X11 USER'S Manual. That is, via by both constant and random(if selected) relocation, cycling under chain mode occurs in 28K segments instead of the normal 4K segments. In any case, when the RTE is in lowest memory and a system-end-of-pass occurs, a return to the XXDP+ monitor will occur.

4. Finally, if the RTE file is running when a Control C(C) is entered, the RTE will stop and Command Mode(CMD>) will be entered. This, however, will not affect the XXDP+ pass-count. Thus, when a RUN Command is subsequently entered, the RTE will be restarted and the incrementation of the pass-count will continue until a value specified in the chain file is reached. At that point the XXDP+ monitor will terminate the execution of the RTE and the next program in the chain will be loaded.

4.4.2 APT Control

The following material assumes that the user is familiar with APT Control as described in the APT-11 Manual(APT11.MAN)

When a DEC/X11 Run-Time Exerciser(RTE) is created for use under APT control, the following initial build requirements and operational differences must be noted.

Configuring for APT

When an RTE is initially configured for use under APT control, the following requirements must be adhered to:

1. When constructing the Configuration Table(C-Table), ensure that all required Background Modules(BKMODs) are entered last. This is necessary because BKMODs are the slowest group of modules to be sorted by the DEC/X11 monitor. Thus, proper configuration ensures that no discrepencies will occur when a comparison is made between the module-map listing(in the E-Table) and the actual positon of the modules in the module listing.

2. When entering a desired DEC/X11 APT monitor name(i.e., F, G, H, or I) in the C-Table, be aware that each name respectively reflects the APT equivalent of a basic DEC/X11 monitor(B,C,D,E). A DEC/X11 APT monitor should be selected as follows:

   - Monitor F is for non-KT systems(e.g., 11/03, 11/04, etc.)
   - Monitor G is for KT systems (excluding 11/60 and 11/70)
   - Monitor H is for 11/60 systems.
   - Monitor I is for 11/70 systems.

APT Interface Locations

The following defines the interface differences encountered when running an RTE under APT control:

1. APT Parameter Block Word 4: This location contains a value which defaults the runtime of the longest test to 15 minutes.

2. APT Parameter Block Word 5: This location contains a value which defaults the runtime of the first test to 2 minutes.

3. APT Mailbox Word 4: This location contains the module pass count. The contents of the location are incremented every time the slowest of the resident and selected IOMODs completes an end-of-pass. BKMODs will not affect the incrementation of the counter as long as IOMODs are resident and selected. However, if BKMODs are the only resident or selected modules, each BKMOD module will increment the counter when it completes an end-of-pass.

4. APT E-Table Word 1: The lower byte of this word is defaulted to a value of 001 to define APT Mode as opposed to stand-alone. The upper byte defaults to a value of 200 which makes the assumption that a UUT Console Terminal is available.

5. APT E-Table Word 3: The lower-byte of this word defaults to a Soft Error Limit value of 37 octal while the upper-byte is defaulted to a Hard Error Limit of 001. These values respectively indicate that the occurrence of 37 soft errors or 1 hard error within a module, will result in the reporting of a fatal error to APT. Soft errors or if desired the value of each byte, may be adjusted up to the maximum of 37 octal. However, the hard error limit should only exceed 1 during debug, since this will change the pass/fail criteria of the RTE.

6. APT Module Map: Each byte in the module map provides a device-count-entry for each module. If the byte is 0, the module is deselected. The formatting of a device count is described in the DEC/X11 User's Manual. However, the following provides several examples of device count entries:

   - A 000 octal entry will deselect the module.
   - A 001 octal will select module to test device zero
   - A 002 octal will select module to test device one.
   - A 003 octal will select module to test devices zero and one.

Finally, in order to monitor or modify any of the aforementioned words, an appropriate absolute address may be derived by adding the value contained in location 44 to one of the following values:

- APT Parameter Block Word 4: 004(longest test)
- APT Parameter Block Word 5: 006(first test)
- APT Mailbox Word 4: 022(module pass count)
- APT E-Table Word 1: 034(APT Mode/UUT Terminal)
- APT E-Table Word 3: 040(soft error/hard error)
- APT Module Map: 100(module device counts)

Example: Find the absolute address of APT Mailbox word 4 (location 44=5764 octal):

```
5764 = Contents of location 44
+ 22 = APT Mailbox Word 4 value.
-----
6006 = Absolute Address of APT Mailbox Word 4.
```

Error Reporting Under APT

When a module detects a fatal error, four of the five module-name characters(excluding the Rev. letter) are reported to APT. For example, if Module RKBA1 detects a fatal error, RKB1 is reported to APT.

If the monitor detects a fatal error, a special four-letter code is reported to APT. The first two letters of the code(MO) indicates monitor detection while the remaining two define the type of fatal error detected, as follows:

```
MOxx
  CQ  Control Queue Overflow Error
  TQ  Type Queue Overflow Error
  PE  Parity Error(Memory, Cache, or ECC)
  ME  Memory Error
  KT  Memory Management(KT) Trap Error.
  SE  System Error(Trap through location 04 or 10)
```

If a Console Terminal device is available, all error messages will be output to the Console device. This includes any fatal error message which will also evoke the output of a run summary prior to terminating the RTE.

5.0 BIBLIOGRAPHY

6.0 GLOSSARY

APPENDIX A

Following is a sample build of a RTE from pre-build planning thru the linking process.

System configuration consists of the following:

11/70
256K of Memory
Extended Instruction Set
Cache
Floating Point Hardware
1-RM03 Single Port Disk
M9312
2-TM03/TE16
1-LP11
1-RS04
1-DH11

SHEET 1 of 1
DEC/X11 System Configuration Worksheet

Selected DEC/X11 Monitor For Listed
CPU and CPU options: E

FILE: ESAMC0.BIN DATE: 20 SEPT 78

DEVICE	MOD	R	DVA	VCT	BR1	BR2	DVC	SR1	SR2	SR3	SR4
RM03	RMA	A	176700*	254*	5*	0*	1*				
LP11	LPA	A	177514*	200*	4*	0*	1*	77000			
TM03/TE16	TMB	A	172440*	224*	5*	0*	2				
RS04	RSA	A	172040*	204*	5*	0*	1*				
DH11	DHA	A	160200	300	5*	5*	1*				
EIS	CPB	A									
11/34 Instr.	CPA	A									
FP11-C	FPB	A									
M9312	BMH	A									

* DENOTES SOFTWARE DEFAULTS

At this time we are ready to start building the Configuration Table.
This is done by running the Configurator/Linker.

```
S\DK0<CR>_                              ;Boot the Load Medium

CLEARING MEMORY
CHUXC-A JAN-79 XXDP++ DK MONITOR
BOOTED YYY UNIT 0
ENTER DATE (DD-MMM-YY): 4-APR-79        ;ENTER DATA
RESTART  160000
>DATE 4-APR-79
>
THIS IS XXDP++.  TYPE "H" OR "H/L" FOR DETAILS

.R DXCL<CR>                             ;Run the Configurator/Linker
                                        ;Program

CHUXC-A JAN-79 XXDP++ DEC/X11 CNF/LNK
  RESTART:  006472
DO YOU WANT HELP?(Y <CR> OR NOT <CR>) <CR> ;Inhibit help message

*CNF<CR>                                ;Enter CNF mode

MONITOR:  E<CR>                         ;Enter Monitor name

*MDL RMAA<CR>                           ;Enter Module RMAA
  DVA=<CR>
  VCT=<CR>
  BR1=<CR>
  BR2=<CR>
  DVC=<CR>
  SR1=<CR>
  SR2=<CR>
  SR3=<CR>
  SR4=<CR>
RMAA   DVA-000000 VCT-000000 BR1-000000 BR2-000000 DVC-000000
       SR1-000000 SR2-000000 SR3-000000 SR4-000000

*MDL LPAA<CR>                           ;Enter Module LPAA
  DVA=<CR>
  VCT=<CR>
  BR1=<CR>
  BR2=<CR>
  DVC=<CR>
  SR1=77000<CR>                         ;Change LPAA SR1 value
  SR2=<CR>
  SR3=<CR>
  SR4=<CR>
LPAA   DVA-000000 VCT-000000 BR1-000000 BR2-000000 DVC-000000
       SR1-077000 SR2-000000 SR3-000000 SR4-000000

*MDL TMBA<CR>                           ;Enter Module TMBA
  DVA=<CR>
  VCT=<CR>
```



```
  BR1=<CR>
  BR2=<CR>
  DVC=2<CR>                             ;Change TMBA DVC value
  SR1=40<CR>                            ;Change TMBA SR1 value
  SR2=<CR>
  SR3=<CR>
  SR4=<CR>
TMBA   DVA-000000 VCT-000000 BR1-000000 BR2-000000 DVC-000003
       SR1-000040 SR2-000000 SR3-000000 SR4-000000

*MDL RSAA<CR>                           ;Enter Module RSAA
  DVA=<CR>
  VCT=<CR>
  BR1=<CR>
  BR2=<CR>
  DVC=<CR>
  SR1=<CR>
  SR2=<CR>
  SR3=<CR>
  SR4=<CR>
RSAA   DVA-000000 VCT-000000 BR1-000000 BR2-000000 DVC-000000
       SR1-000000 SR2-000000 SR3-000000 SR4-000000

*MDL DHAA<CR>                           ;Enter Module DHAA
  DVA=160200<CR>                        ;Change DHAA DVA value
  VCT=300<CR>                           ;Change DHAA DVA value
  BR1=<CR>
  BR2=<CR>
  DVC=<CR>
  SR1=<CR>
  SR2=<CR>
  SR3=<CR>
  SR4=<CR>
DHAA   DVA-160200 VCT-000300 BR1-000000 BR2-000000 DVC-000000
       SR1-000000 SR2-000000 SR3-000000 SR4-000000

*MDL CPBA<CR>                           ;Enter Module CPBA
  DVA=<CR>
  VCT=<CR>
  BR1=<CR>
  BR2=<CR>
  DVC=<CR>
  SR1=<CR>
  SR2=<CR>
  SR3=<CR>
  SR4=<CR>
CPBA   DVA-000000 VCT-000000 BR1-000000 BR2-000000 DVC-000000
       SR1-000000 SR2-000000 SR3-000000 SR4-000000

*MDL CPAA<CR>                           ;Enter Module CPAA
  DVA=<CR>
  VCT=<CR>
  BR1=<CR>
  BR2=<CR>
  DVC=<CR>
```

```
SR1-77000<CR>
SR2=<CR>
SR3=<CR>
SR4=<CR>
SR1=<CR>
CPUA   DVA-000000 VCT-000000 BR1-000000 BR2-000000 DVC-000000
       SR1-077000 SR2-000000 SR3-000000 SR4-000000

*MDL FPBA<CR>                          ;Enter Module FPBA
DVA=<CR>
VCT=<CR>
BR1=<CR>
BR2=<CR>
DVC=2<CR>
SR1=40<CR>
SR2=<CR>
SR3=<CR>
SR4=<CR>
FPBA   DVA-000000 VCT-000000 BR1-000000 BR2-000000 DVC-000003
       SR1-000040 SR2-000000 SR3-000000 SR4-000000

*MDL BMHA<CR>                          ;Enter Module BMHa
DVA=<CR>
VCT=<CR>
BR1=<CR>
BR2=<CR>
DVC=<CR>
SR1=<CR>
SR2=<CR>
SR3=<CR>
SR4=<CR>
BMHA   DVA-000000 VCT-000000 BR1-000000 BR2-000000 DVC-000000
       SR1-000000 SR2-000000 SR3-000000 SR4-000000

*EX<CR>                                ;Leave CNF mode

*LINK DK0:ESAMC0.BIN<DK0:XMONA0.LIB<CR> ;Enter the LINK Command

SYS SIZE: 160000                       ;Enter System Size

MAKE OUTPUT READY.  WRITE ENABLE
TYPE <CR> WHEN READY.  <CR>

PASS 1

TRANSFER ADDRESS: 02200
LOW LIMIT: 000000
HIGH LIMIT: 122660

PASS 2

LINK DONE

**SAVC DK0:CSAMC0.CNF                 ;Save Configuration table
DONE
```



```
*SAVM DK0:MSAMC0.MAP                   ;Save Load Map
DONE
```

FOLLOWING IS AN EXAMPLE USING CNF/NP:

```
*CNF/NP                          ;Enter CNF mode with prompting
                                 ;inhibited
MONITOR: E                       ;Enter Monitor name
*MDL RMAA<CR>                    ;Enter module RMAA
*MDL LPAA<CR>                    ;Enter module LPAA
*SR1 77000                       ;Change LPAA SR1 value
*MDL TMBA<CR>                    ;Enter module TMBA
*DVC 2                           ;Change TMBA DVC value
*SR1 40                          ;Change TMBA SR1 value
*MDL RSAA<CR>                    ;Enter module RSAA
*MDL DHAA<CR>                    ;Enter module DHAA
*DVA 160200<CR>                  ;Change DHAA DVA value
*VCT 300<CR>                     ;Change DHAA VCT value
*MDL CPBA<CR>                    ;Enter module CPBA
*MDL CPAA<CR>                    ;Enter module CPAA
*MDL FPBA<CR>                    ;Enter module FPBA
*MDL BMHA<CR>                    ;Enter module BMHA
*EX                              ;Leave CNF mode
*LINK DK0:ESAMC0.BIN<DK0:XMONA0.LIB<CR> ;Enter the LINK Command
SYS SIZE:  160000
MAKE OUTPUT READY, WRITE ENABLE
TYPE <CR> WHEN READY.<CR>
DELETE OLD? (Y<CR> OR JUST <CR>)Y<CR> ;Delete old file named
                                 ;ESAMC0.BIN
PASS 1
TRANSFER ADDRESS: 002200
LOW LIMIT: 000000
HIGH LIMIT: 122660
PASS 2
LINK DONE
```



```
*SAVC DK0:CSAMC0.CNF<CR>         ;Save the Configuration Table
DONE
*SAVM DK0:MSAMC0.MAP<CR>         ;Save the Load Map
DONE
*
```

APPENDIX B

TABLE OF ERROR CODES

ERROR	TYPE
0	Not Defined
1	Data Error
2	Data Late
3	Controller not ready
4	Block not found
5	Block missed
6	Device off-line, non-existent or not ready
7	Selection ERROR
10	Non-existent memory
11	Illegal interrupt occurred or "Done" did not set
12	Premature end of file encountered
13	Rewind error (rewind took too long)
14	# of interrupts incorrect
15	Incorrect vector address
16	"Busy" won't clear in time
17	Unknown receiver error
20	Unknown transmitter error
21	Overrun error
22	Framing error
23	Device failed to interrupt
24	Time-out-shift out error

ERROR	TYPE
25	Bit stuck in Register or DID not change state in TIME
26	A-D CONVERSION OUT OF SPEC.
27	Interrupt enable error
30	Unknown ERROR during data Transfer
31	A/D RMS or peak noise exceeded limit
32	NPR error
33	Device not in maintenance mode
34	Device will not initialze
35	Buffer fill error
36	Unable to execute a Read FUNCTION
37	Unable to excute a write function
40	Transfer read bit did not set
41	Transmit data late error
42	Active bit in register should be set - not cleared
43	Cyclic redundancy check error detected
44	Flag should not be set
45	Floating point mathematical operation produced INCORRECT results
46	Clock overflow failed to trigger A/D conversion
47	Controller would not clear
50	Data set line change
51	BAD SEEK

ERROR	TYPE
52	MICRO CODE NOT LOADED

DIAGNOSTIC ENGINEERING

digital **DECO☐ DEPO☒ SUBMISSION☐**

FOR RELEASE ENG. USE ☐ NEW ☐ CHANGE ☐ DELETE

PRODUCT IDENTIFICATION

	LIBRARY	PRODUCT NUMBER	REV	PATCH	ECO TALLY	PRODUCT DATE (DD MMM YY)	STATUS	DISTRIBUTION	1ST COPY-RIGHT YEAR	LAST COPY-RIGHT YEAR
MD	ZZ	CXQUB	C	1	Ø4	21 FEB 79	☐ OBSOLETE	XX G ☐ R	1979	1979

TITLE: CXQUBC1 DEC/X11 CROSS REF MAN

AUTHOR: D.BUTENHOF | MAINTAINING GROUP: DECX SPT GRP | MAINTAINER: D.BUTENHOF | SUBMITTING ENGINEER: D.BUTENHOF

PRODUCT COMPONENTS

CK	DESCRIPTION	PRODUCT NO	REV	CK	DESCRIPTION	PRODUCT NO	REV
	DOCUMENT				INDEX		
	LISTING				SOURCE MEDIA		
	OBJECT MEDIA				TEST MEDIA		
	FICHE						
	DEPO	AF-FØ55C-M1					

PRODUCTS OBSOLETED (other than previous version)

	LIBRARY	PRODUCT NUMBER	REV		LIBRARY	PRODUCT NUMBER	REV		LIBRARY	PRODUCT NUMBER	REV
MD				M D				M D			

PRODUCT CHARACTERISTICS

PROCESSORS PRODUCT OPERATES WITH (Enter all applicable 2-digit codes representing the Processor the product operates with. See separate instructions.)

N/A

OPERATIONAL CODES (Enter all applicable 2-digit codes that describe the product. See separate instructions.)

N/A

ACT APT/XXDP INFORMATION FIELD	EXT	ACT SEQ NUMBER	ACT/XXDP COMPATIBLE?	APT COMPATIBLE?	1ST PASS RUN TIME	SUBSEQUENT PASS RUN TIME
			☐ Y XX N	☐ Y XX N	SECONDS	SECONDS

DECO/DEPO INFORMATION

PROBLEM REPORTS CLOSED:

VMS AFFECTED: DEC/X11 | MULTIMEDIA AFFECTED? ☒ YES ☐ NO

KIT NUMBERS						
	ZJ129-RZ,FR	ZJ215-FR,RY,RZ	ZJ271-RE,RG,RZ,RB,FR			
			ZJ271-RE,RY,RX,RZ,FR			

PROBLEM:

Some new module revisions listed in CXQUBCØ were not acutally released at that time.

SOLUTION:

The effect of said modules on the manual should be reversed.

page 68-71 : delete these pages.
page 88 : the revision level of TMA is I, not J.

DEPO PATCH AREA

CHANGE LOC	FROM	TO	CHANGE LOC	FROM	TO

SUBMITTING ENGINEER	MANUFACTURING ENGINEER	SUPPORT ENGINEER	CHARGE DECO/DEPO TO DISCRETE PROJECT NUMBER
DATE	DATE 21-Mar-79	DATE	Q98-05640
MAINTAINER	FIELD SERVICE	WAIVERING MANAGER	COORDINATION NO. MC#2954
	DATE	DATE	