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XVME-955

Hard and Floppy Disk Drive

74955-001D

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1.1 OVERVIEW

The XVME-955 Hard Disk/Floppy Disk Module provides a convenient way to integrate both hard and floppy disk drives into a VMEbus system. This module combines an 85, 127 or 240 Mbyte 3.5" hard disk drive and a high density 1.44 Mbyte 3.5" micro-floppy drive into a unit that occupies two double-high VMEbus slots. The Hard Disk/Floppy Disk Module is ideally suited for use with Xycom's VME PC/AT processors. The unit plugs into the VMEbus P1 backplane, which is used only for providing power and ground signals to the XVME-955. Floppy disk and hard disk signals are passed to and from the XVME-955 through ribbon cables on the module front panel.

1.2 MANUAL STRUCTURE

This manual is divided into two chapters, which contain the following information:

Chapter 1 - **Introduction.** A general description of the Hard Disk/Floppy Disk Module, including complete functional and environmental specifications, as well as compatibility and VMEbus compliance information.

Chapter 2 - **Installation.** Hard Disk/Floppy Disk installation information including procedures for connecting the XVME-955 cables to the Xycom PC/AT processor modules and connector pinouts.

1.3 OPERATIONAL BLOCK DIAGRAM

Figure 1-1 on the following page shows an operational block diagram of the XVME-955 Hard Disk/Floppy Disk Module.

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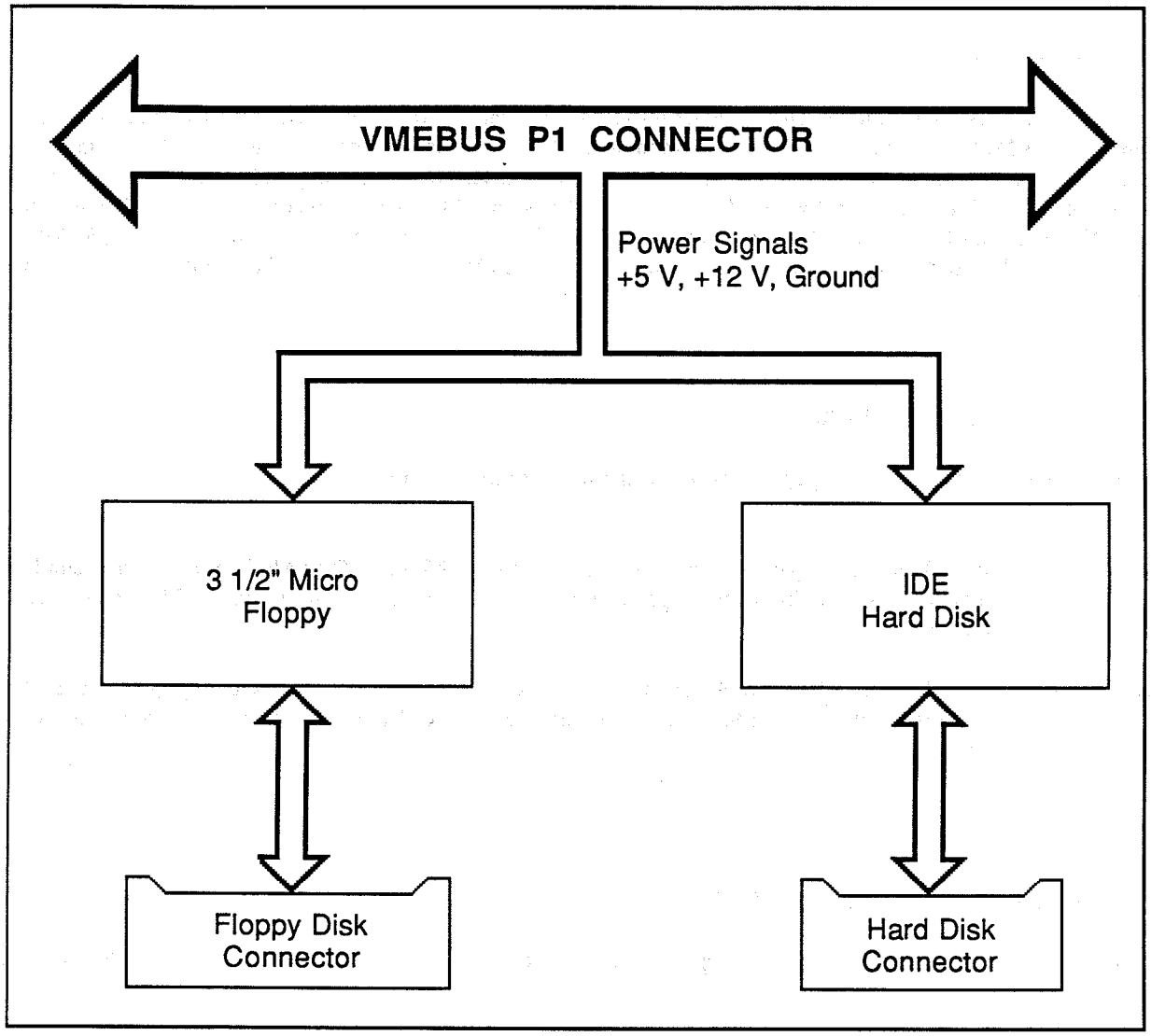

Figure 1-1. XVME-955 Operational Block Diagram

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1.4 XVME-955 FEATURES

The XVME-955 Hard Disk/Floppy Disk Module provides the following features:

- One 85, 127 or 240 Mbyte 3.5" IDE self-parking hard disk drive
  - 32 Kbyte look-ahead cache, 256 Kbyte for 240 Mbyte drive
  - Reassignment of defective sectors discovered in the field without reformatting
- One 3.5" SA450 1.44 Mbyte floppy disk drive
- Ability to mount in a 6U VME cardcage using two slots
- IDE and floppy connectors available on module front panel

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1.5 XVME-955 MODULE SPECIFICATIONS

Table 1-1. XVME-955 Module Specifications

CHARACTERISTIC	SPECIFICATION
Hardware	
Hard Drive	
85 Mbyte Unit	
Interface	IDE
Capacity (formatted)	85 Mbytes
Seek times	
Average access	17 msec
Track to track	5.5 msec
Maximum access	33 msec
127 Mbyte Unit	
Interface	IDE
Capacity (formatted)	127 Mbytes
Seek times	
Average access	17 msec
Track to track	5.5 msec
Maximum access	33 msec
240 Mbyte Unit	
Interface	IDE
Capacity (Formatted)	245 Mbytes
Seek Times	
Average access	16 msec
Track to track	4 msec
Maximum access	35 msec

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XVME-955 Module Specifications (Continued)

CHARACTERISTIC	SPECIFICATION
Data Rate Transfer (Both hard drives)	
To/from media	2.5 Mbytes / sec
To/from buffer	4.0 Mbytes / sec
Floppy Interface	
Interface	SA-450
Compatibility	3.5" 1.44 Mbytes
Environmental Specifications	
Temperature	
Operating	5° to 50° C (41° to 122° F)
Non-operating	-40° to 60° C (-40° to 140° F)
Humidity	8% to 80% RH, non-condensing
Shock	
Operating	5 g peak acceleration, 11 msec duration
Non-operating	60 g peak acceleration, 11 msec duration
Vibration	
Operating	0.5 g peak acceleration, 5 to 300 Hz
Non-operating	2.0 g peak acceleration, 5 to 300 Hz
Altitude	
Operating	Sea level to 10,000 ft. (3048 m)
Non-operating	Sea level to 40,000 ft. (12192 m)
Power Specifications	
85, 127, or 240 Mbyte Hard Drive	+5 VDC @ 320 mA max. +12 VDC @ 1.0 A max.
Floppy Drive	+5 VDC @ 890 mA max.

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2.1 INTRODUCTION

This chapter provides the information necessary to install the XVME-955 Hard Disk/Floppy Disk Module into the VMEbus backplane and to connect the XVME-955 to Xycom's VMEbus PC/AT Processor Modules.

2.2 INSTALLING THE XVME-955 INTO A VMEBUS CARDCAGE

The XVME-955 Hard Disk/Floppy Disk Module fits into any standard 6U VMEbus cardcage. Like all of Xycom's modules, the XVME-955 is designed to comply with all electrical VMEbus backplane specifications.

NOTE

Because the IACKIN signal is not connected to IACKOUT signal, and the BUS GRANT IN (X) signals are not connected to BUS GRANT OUT (X) signals on the XVME-955, these signals must be jumpered via the backplane.

CAUTION

- Never attempt to install or remove any boards before turning off power to the bus and to all related external power supplies.
- Before installing a module, determine and verify all connections to external devices or power supplies.

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To install the XVME-955 into the VMEbus cardcage, perform the following steps:

1. Make sure three or four consecutive cardcage slots, depending on the PC/AT processor being used, are clear and accessible. The slots on the right will hold the XVME-955, and the left slot or slots will hold the PC/AT processor module.

2. Connect a 34-pin ribbon cable from the XVME-955 to the floppy drive connector on the PC/AT processor. Next, connect a 40-pin ribbon cable from the XVME-955 to the IDE hard drive connector on the PC/AT processor.

3. Center the XVME-955 on the plastic guides in the two slots on the right.

4. Push the unit slowly toward the rear of the chassis until the connectors engage. (The card should slide easily in the plastic guides.)

5. Apply straightforward pressure to the handles on the front of the panel until the connectors are fully engaged and properly seated.

> **NOTE**
> It should not be necessary to use excessive force or pressure to engage the connectors. If the board does not connect properly with the backplane, remove the module and inspect all connectors and guide slots for possible damage or obstructions.

6. Once the XVME-955 is properly seated, secure it to the chassis by tightening the machine screws at the top and bottom of the board.

2.3 CONFIGURING THE XVME-955

The PC/AT uses battery-backed CMOS RAM to store the configuration of the hard disk and the floppy drive. Once the unit has been inserted in a VMEbus rack, the setup program should be invoked after system power-up.

2.3.1 Selecting the Floppy Drive

Select the floppy drive as drive A:, and the type as 3.5" - 1.44 Mbytes.

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2.3.2 Selecting the Hard Drive

The hard drive configuration is dictated by the type of hard drive in the unit.

Set the specifications for your particular hard drive as shown in Table 2-1 below:

Table 2-1. XVME-955 Setup Information

Specification	85 Mbyte Drive	127 Mbyte Drive	240 Mbyte Drive
Cylinders	977	919	723
Heads	10	16	13
Sectors	17	17	51
Land Zone	977	919	723
Write Precomp	None	None	None

After the hard drive has been set up, the system can be rebooted and the operating system can be loaded.

Because the hard drive comes pre-formatted with a 1:1 interleave, low-level formatting is not required.

The installation and configuration of the XVME-955 is now complete.

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2.4 CONNECTING THE HARD AND FLOPPY DISK CABLES

The hard and floppy disk cables on the XVME-955 are designed to be connected to one of the Xycom VME PC/AT modules. See Figure 2-1 on the following page for a diagram of the installation procedure.

1. The XVME-955 should already be installed in the cardcage according to the instructions in section 2.2. Make sure two slots to the left of the XVME-955 are clear and accessible.

2. With the processor module outside of the cardcage, connect one end of the 34-pin floppy disk control/data cable to P4 on the processor. Make sure that the red stripe of the cable faces downward, and that pins 1 line up.

3. The 40-conductor cable is the hard disk cable. Connect one of its ends to P5 on the module so that the red stripe is at the top of the cable. Make sure pins 1 line up.

4. Hold the other ends of the cables on the processor module out in front of the unit while sliding the module into the slot to the left of the XVME-955. When the processor is in place, the connectors should be accessible for attaching to the XVME-955.

5. With both boards in the VMEbus chassis, connect the cable from P4 on the processor (the upper connector) to the floppy drive connector on the XVME-955 (also the upper connector). Make sure pins 1 line up and the connector on the XVME-955 engages.

6. Connect the cable from P5 on the processor to the IDE connector on the XVME-955 module (both the lower connectors), ensuring that pins 1 line up. Make sure the connector engages on the XVME-955.

> **NOTE**
> If using the XVME-686 module, the connectors are labeled as P8 and P9 instead of P4 and P5, as they are on the other PC/AT processors.

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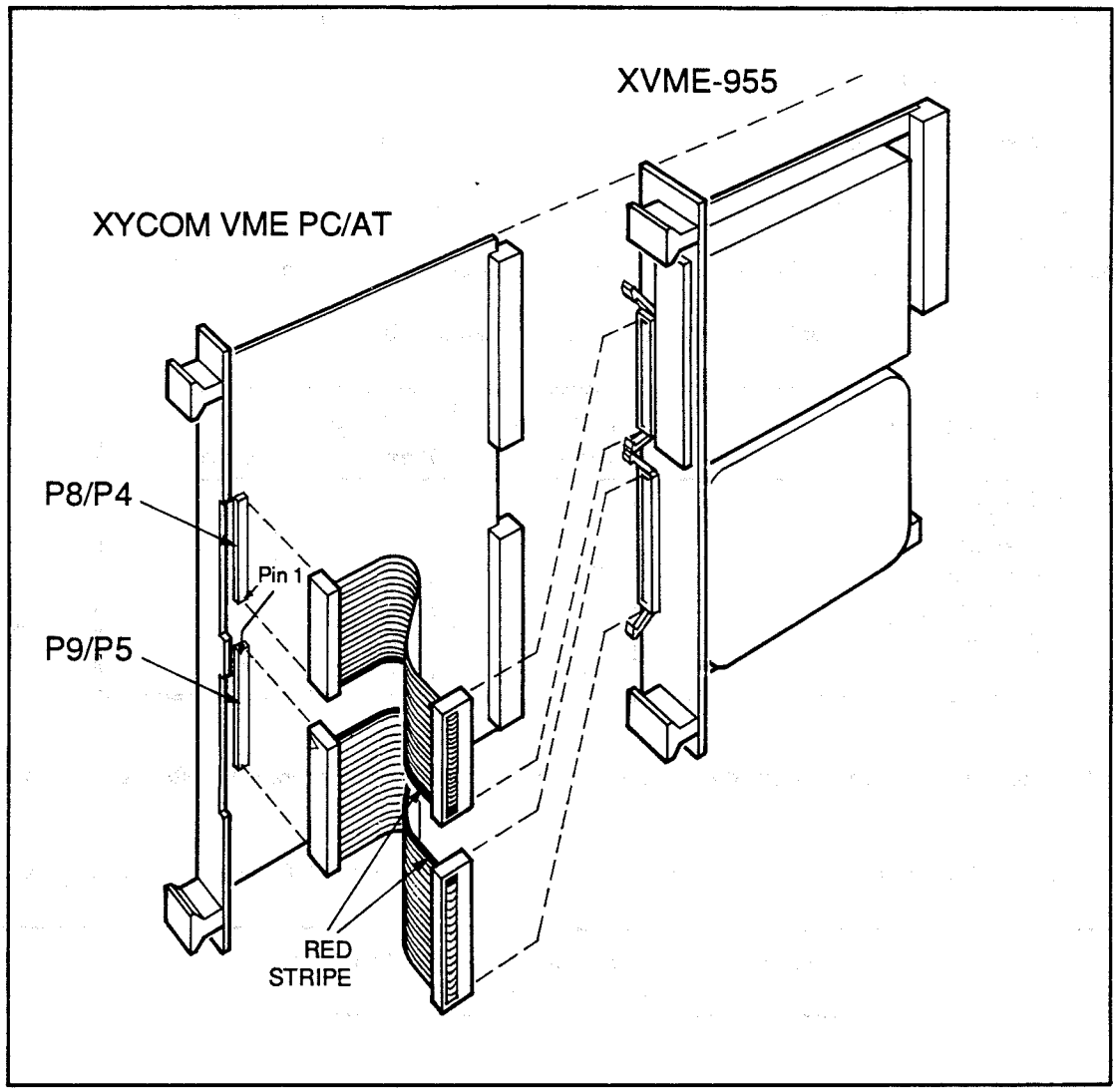

Figure 2-1. Connecting the XVME-955 to the PC/AT Processor Modules

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2.5 RUNNING THE PC/AT PROCESSOR SETUP PROGRAM

The Xycom VMEbus PC/AT processors have a ROM resident SETUP program that allows altering various PC/AT parameters, such as disk type, memory size, etc. To enter the setup program, type:

<CTRL><ALT>S

You need to specify the floppy and hard drives using the setup program.

Select the floppy drive as drive A:, and the type as 3.5" - 1.44 Mbytes.

Set the hard drive configuration based on the settings shown below for your particular hard drive:

Table 2-2. PC/AT Processor Setup Information

Specification	**85 Mbyte Drive**	**127 Mbyte Drive**	**240 Mbyte Drive**
Cylinders	977	919	723
Heads	10	16	13
Sectors	17	17	51
Land Zone	977	919	723
Write Precomp	None	None	None
Type	User	User	User

After the hard drive has been set up, the system can be rebooted and the operating system can be loaded.

Because the hard drive comes pre-formatted with a 1:1 interleave, low-level formatting is not required.

The installation and configuration of the XVME-955 is now complete.

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2.6 PINOUT DESCRIPTIONS

The following tables show the pinouts for the hard and floppy drive connectors.

Table 2-3. XVME-955 Floppy Disk Connector

PIN	SIGNAL	PIN	SIGNAL
1	GND	18	FDIRC*
2	FRWC*	19	GND
3	GND	20	FSTEP*
4	N/C	21	GND
5	KEY	22	FWD*
6	N/C	23	GND
7	GND	24	FWE*
8	IDX*	25	GND
9	GND	26	FTK0*
10	MO1	27	GND
11	GND	28	FWP*
12	FDS2	29	GND
13	GND	30	FRDD*
14	FDS1	31	GND
15	GND	32	FSW*
16	MO2	33	GND
17	GND	34	DCHG*

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Table 2-4. XVME-955 Hard Disk Connector

PIN	SIGNAL	PIN	SIGNAL
1	RESET*	21	N/C
2	GND	22	GND
3	ID87	23	IOW*
4	SD8	24	GND
5	SD6	25	IOR*
6	SD9	26	GND
7	SD5	27	N/C
8	SD10	28	ALE
9	SD4	29	N/C
10	SD11	30	GND
11	SD3	31	IDINT
12	SD12	32	N/C
13	SD2	33	SA1
14	SD13	34	N/C
15	SD1	35	SA0
16	SD14	36	SA2
17	SD0	37	HCS0
18	SD15	38	HCS1
19	GND	39	N/C
20	N/C	40	N/C

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