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XVME-957

Hard and Floppy Disk Drive

P/N 74957-002A

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Printed in the United States of America
Part Number 74957-002A

XYCOM
750 North Maple Road
Saline, Michigan 48176-1292
(313) 429-4971

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1.1 PRODUCT OVERVIEW

The XVME-957 Hard Disk/Floppy Disk Module provides an easy way to integrate both hard and floppy disk drives into a VMEbus system. Constructed for the industrial market, where high levels of shock and vibration are the norm, the module is a single slot VME form factor disk drive with a 3.5 inch floppy drive and a 2.5 inch hard drive.

Compact and easily installable, the XVME-957 Hard Disk/Floppy Disk Module is an ideal mass storage solution for a wide variety of VMEbus systems. Built to communicate with Xycom's VMEbus PC/AT Processors, this module can also be used with any IBM compatible IDE or floppy drive controller.

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1.2 OPERATIONAL BLOCK DIAGRAM

As depicted in Figure 1-1, the power for the XVME-957 is provided by the P1 VME connector.

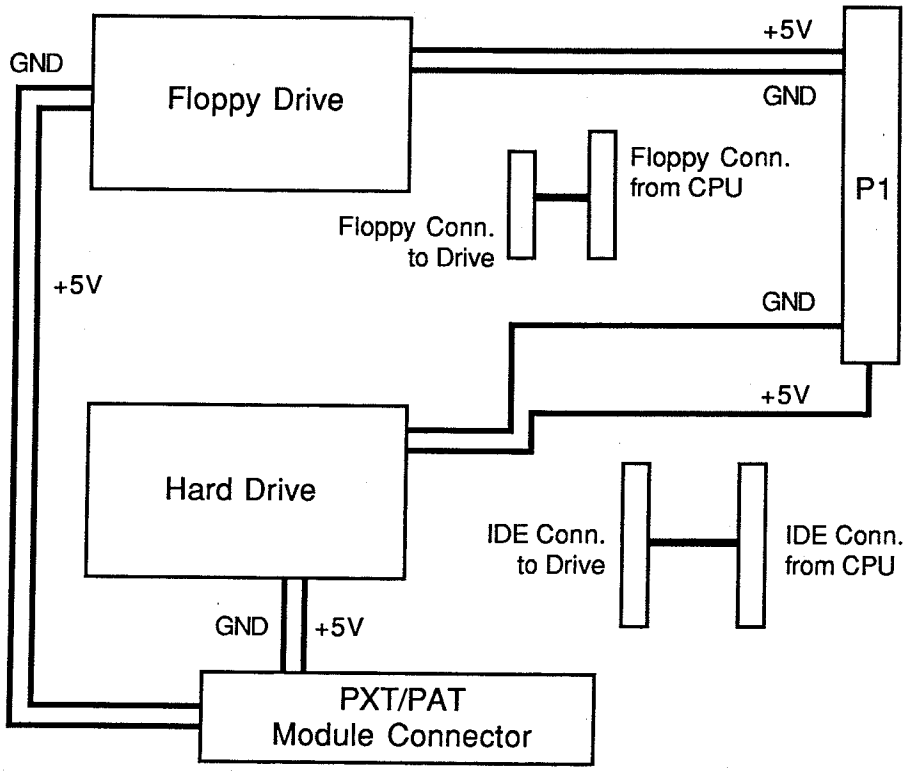


Figure 1-1. XVME-957 Operational Block Diagram

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1.3 FEATURES

The XVME-957 Hard Disk/Floppy Disk Module has a 2.5 inch IDE hard drive and a 3.5 inch floppy drive, with the following features:

- Occupies only 1 VMEbus slot
- Hard drive LED activity indicator
- Needs only +5V
- IDE hard drive (XVME-956/1 and 956/12):
  - 126.6 Mbyte formatted capacity
  - Automatic retry on errors
  - Transparent defect mapping
  - 32 Kbyte look-ahead Cache
- IDE hard drive (XVME-956/3 and 956/14):
  - 240 Mbyte formatted capacity
  - Automatic retry on errors
  - Transparent defect mapping
  - 96 Kbyte look-ahead Cache
- 3.5 inch high density floppy drive:
  - Supports 1.44 Mbyte and 720 Kbyte disk formats

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1.4 SPECIFICATIONS

This section contains the hardware and environmental specifications for the XVME-957.

Table 1-1. XVME-957 Hardware Specifications

Characteristic	Specification
Hard Drive	
Interface	IDE
Type	2.5"
Capacity	126.6 Mbyte or 240 Mbyte
Seek Times:	
Average Access	<19 msec
Track to Track	<5 msec
Maximum	<40 msec
Floppy Drive	
Interface	IBM PC/AT Compatible
Compatibility	3.5" 1.44 Mbyte

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Table 1-2. XVME-957 Environmental Specifications

Characteristic	Specification
Temperature	
Operating	5° to 50°C (41° to 122°F)
Non-operating	-40° to 60°C (-40° to 140°F)
Humidity	20 to 80%, non-condensing
Vibration	
Operating	.5g 10-500 Hz
Non-operating	1g 10-100 Hz
Shock	
Operating	5g peak acceleration 11 msec duration
Non-operating	100g peak acceleration 11 msec duration
Altitude	
Operating	-200 ft to 10,000 ft (3,048 m)
Non-operating	-200 ft to 40,000 ft (12,192 m)
Current	
Hard drive	+5v 1.1A max. (Spin-up Peak) (.40A Typical)
Floppy drive	+5v .74A max. (Spin-up Peak) (.40A Typical)

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2.1 INTRODUCTION

This chapter provides the necessary information to install the XVME-957 Hard Disk/Floppy Disk Module into the VMEbus backplane, and to connect the XVME-957 to Xycom's VMEbus PC/AT Processor Modules.

2.2 INSTALLING THE XVME-957 INTO A VMEBUS CARDCAGE

The XVME-957 Hard Disk/Floppy Disk Module occupies only one double-high VMEbus slot and fits into any standard 6U VMEbus cardcage. Like all of Xycom's modules, the XVME-957 is designed to comply with all electrical VMEbus backplane specifications. This module only draws current from the +5 volt power supply.

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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2.2.1 Installing the XVME-957/1 or 957/3

To install the XVME-957/1 or 957/3 into the VMEbus cardcage, perform the following steps:

1. Power off the chassis.
2. Clear a single slot to the right of the CPU board.
3. Remove the CPU board.
4. Connect the floppy drive and hard drive cables to the XVME-957/1, as depicted in Figure 2-1.
5. Centering on the plastic guides, slide the CPU board and the XVME-957/1 module slowly toward the rear of the chassis.

> **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.

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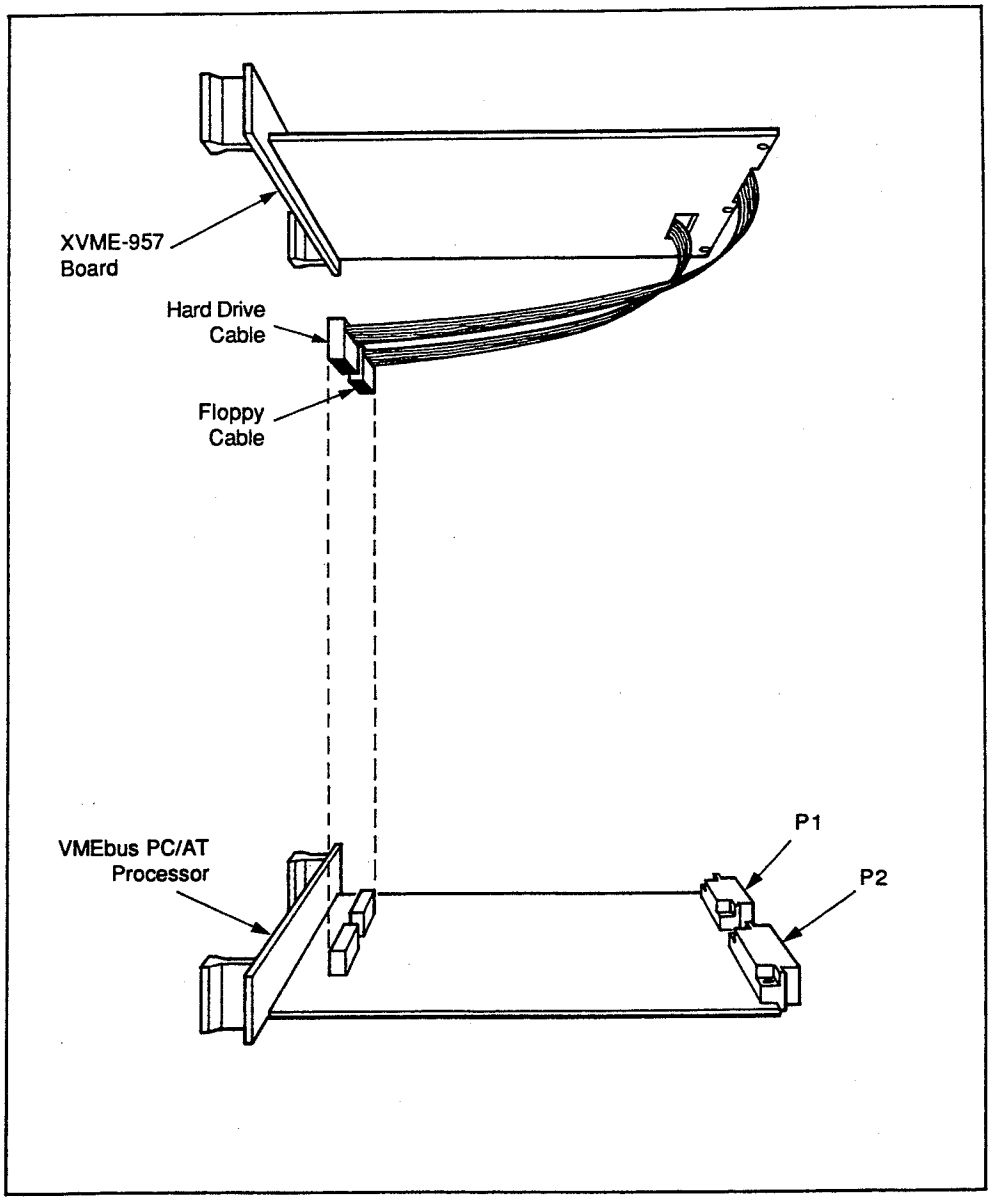


Figure 2-1. Installation of the XVME-957/1 or 957/3

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

7. Once the XVME-957 is properly seated, secure it to the chassis by tightening the machine screws at the top and bottom of the CPU and the XVME-957 board.

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8. Reconnect CPU video cable, mouse, keyboard, etc.

9. Power up the unit.

2.2.2 Installing the XVME-957/1x

This section details the installation of the XVME-957/12 or 957/14 module to a CPU module.

Before you start the installation:

1. Power off the chassis.

2. The XVME-957/1x module occupies one slot and needs to be placed next to the CPU module. Insure that the following cardcage slot(s) are clear and accessible:

   - slot(s) occupied by the CPU module
   - slot to the right of the CPU module (required by the XVME-957/1x)

3. Remove the CPU board.

4. Locate the bag containing the screws and standoffs which shipped with the XVME-957/1x.

2.2.2.1 Installing the XVME957/1x onto a CPU Module

To install an XVME-957/1x module onto a CPU module:

1. Remove and discard the connector P2 screw and nut closest to the bottom corner of the CPU module. Refer to Figure 2-2.

2. Attach the long female/female standoff to the solder side of the XVME-957/1x module, as illustrated in Figure 2-2, using a short screw.

3. Attach the short female/female standoff to the solder side of the XVME-957/1x module, as illustrated in Figure 2-2, using a short screw.

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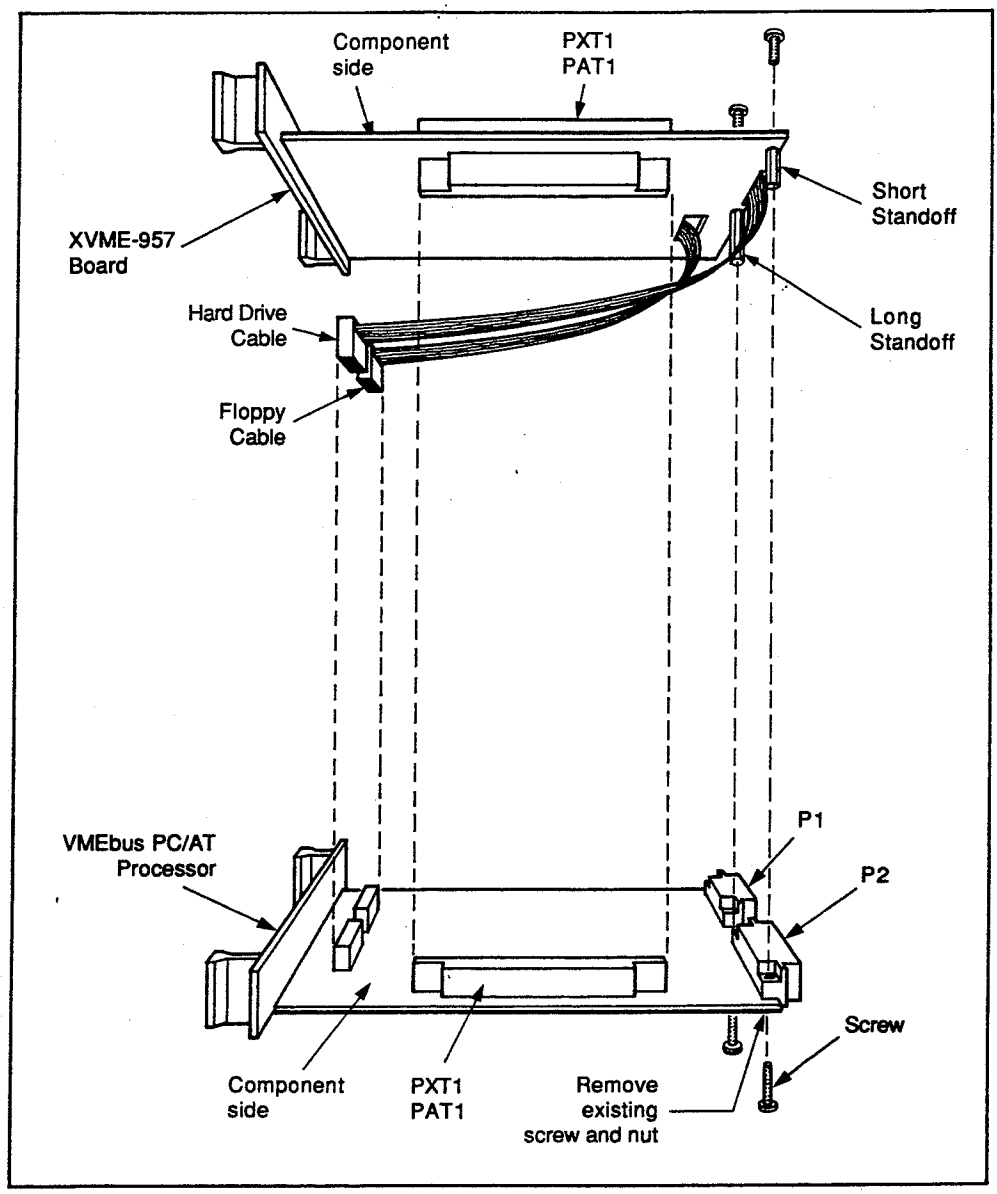


Figure 2-2. Installation of the XVME-957/1x onto a CPU

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4. Connect the floppy drive and hard drive cables to the CPU module, as shown in Figure 2-2.

5. Align the pins of the XVME-957/1x module's PXT1 and PAT1 connector with the CPU module's PXT1 and PAT1 connector socket. Gently press the two modules together until the standoffs (mounted on the 957 module) touch the component side of the CPU module. Insure that the two holes on the CPU module align with the standoffs.

6. Insert two long screws through the solder side of the CPU module into the standoffs.

7. Center the boards of the CPU and the XVME-957/1x modules on the plastic guides of the VME chassis.

8. Push the modules slowly to the rear of the chassis until the P1 and P2 connectors of the CPU module engage.

9. Apply straightforward pressure to the handles of the front panel of the CPU module until its connectors engage and are 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.

10. Once the XVME-957 is properly seated, secure it to the chassis by tightening the machine screws at the top and bottom of the CPU and the XVME-957 board.

11. Reconnect CPU video cable, mouse, keyboard, etc.

12. Power up the unit.

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2.3 CONFIGURING THE XVME-957 WITH XYCOM PC/AT PROCESSORS

The XVME-957 is designed to be used in conjunction with one of Xycom's CPU VMEbus PC/AT Processor modules. This section describes XYCOM CPU specific configuration information.

The PC/AT processor modules use battery-backed CMOS RAM to store the configuration of the hard disk and the floppy drive. The CMOS RAM must be altered to match the XVME-957 parameters for both the floppy and the hard drive.

Once the unit has been inserted properly in a VMEbus rack:

1. Power up the unit.

2. Initiate the setup program by pressing [Ctrl+Alt+S] and the Main Setup Menu is displayed.

3. Select SETUP from the Main Setup Menu and press the [Enter] key. The Extended BIOS Setup screen is displayed.

4. Using the arrow keys to move down the screen, set the floppy and hard drive as follows:

   Diskette Drive 0:**[1.44Mb, 3 1/2]**
   Diskette Drive 1:**[Not Installed]**

   Fixed Disk 0: Type: **Type:[user][*Enter information from the 957 disk drive label.]**
   Fixed Disk 1: Type: **Type:[None]**

> ***NOTE**
> An example of the information printed on a label is provided below.
>
> FIXED DISK: 0 TYPE: USER CY723 HD13 ST51 LZ723 WP0

5. Press [F10] to save.

6. After the disk parameters are saved, 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-957 is now complete.

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2.4 GENERIC CONFIGURING OF THE XVME-957

This section provides general configuration information for the XVME-957.

2.4.1 Selecting the Floppy Drive

Select the floppy drive as drive A: and set the floppy drive to either of the following:

- 3.5 inch 720 Kbytes
- 3.5 inch 1.44 Mbytes

2.4.2 Setting the Specifications

Set the specifications for the hard drive. Use the information printed on the label affixed to the hard drive. An example of the labelled information is shown below.

FIXED DISK: 0 TYPE: USER CY920 HD10 ST17 LZ920 WP0

After the hard disk parameters have been setup, the system can be rebooted and the operating system can be loaded. The hard drive is preformatted with a 1:1 interleave, therefore low-level formatting is not required.

The installation and configuration of the XVME-957 is now complete.

2.5 VME INTERFACE (XVME-957/1 and 957/3)

The VME connector is strictly used to provide power (+5v and GND). The bus grant in and bus grant out are connected together, and the IACKIN* and IACKOUT* are connected together. This VME connector only has 18 pins to allow the unit to be easily inserted or removed.

2.6 PAT/PXT INTERFACE (XVME-957/12 and 957/14)

The PAT/PXT connector provides the +5V power for the XVME-957/12 and 957/14. The connector also extends the signals for the PAT/PXT connector on the CPU card.

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2.7 PINOUT DESCRIPTIONS

This section provides descriptions for the backplane and floppy drive connectors.

2.7.1 Backplane Connector (P1)

The following table lists the P1 pin assignments by pin number order. (The connector consists of three rows of pins labeled rows A, B, and C.)

Table 2-1. Connector Pinouts (P1)

Pin	Row A Signal	Row B Signal	Row C Signal
1	N/C	N/C	N/C
2	N/C	N/C	N/C
3	N/C	N/C	N/C
4	N/C	BG0IN*	N/C
5	N/C	BG0OUT*	N/C
6	N/C	BG1IN*	N/C
7	N/C	BG1OUT*	N/C
8	N/C	BG2IN*	N/C
9	GND	BG2OUT*	N/C
10	N/C	BG3IN*	N/C
11	GND	BG3OUT*	N/C
12	N/C	N/C	N/C
13	N/C	N/C	N/C
14	N/C	N/C	N/C
15	GND	N/C	N/C
16	N/C	N/C	N/C
17	GND	N/C	N/C
18	N/C	N/C	N/C
19	GND	N/C	N/C
20	N/C	N/C	N/C
21	IACKIN*	N/C	N/C
22	IACKOUT*	N/C	N/C
23	N/C	N/C	N/C
24	N/C	N/C	N/C
25	N/C	N/C	N/C
26	N/C	N/C	N/C
27	N/C	N/C	N/C
28	N/C	N/C	N/C
29	N/C	N/C	N/C
30	N/C	N/C	N/C
31	N/C	N/C	+12V
32	+5V	+5V	+5V

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2.7.2 Floppy Drive Connector (P4)

The floppy drive connector P4 is a 34-pin header. Outputs on the drive will only supply 4ma, which is not enough to drive the 150 ohm resistors on the CPU boards. Therefore, a single buffer is used to interface the outputs from the drive to the CPU board. The drive unit can only support one floppy drive due to that buffer.

Table 2-2. Floppy Drive Connector (P4)

Pin	Signal	Pin	Signal
1	GND	18	FDIR*
2	N/C	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	FTKO*
10	MO1*	27	GND
11	GND	28	FWP*
12	FDS2*	29	GND
13	GND	30	FRDD*
14	FDS1*	31	GND
15	GND	32	FHS*
16	MO2*	33	GND
17	GND	Y34	DCHG*

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2.7.3 Hard Drive Connector (P2)

The hard drive connector (P2) is a 40-pin header. This connector provides the IDE drive with all the control signals from the CPU module.

Table 2-3. Hard Drive Connector (P2)

Pin	Signal	Pin	Signal
1	RESET*	21	N/C
2	GND	22	GND
3	ID7	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	ATI0CS16*
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	GND

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