Reference Manual

DOC. REV. 4/9/2013

VL-ENCL-5

Development Enclosure

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Notice:

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Introduction

Description

The VL-ENCL-5 provides easy access, superb protection and portable convenience for products under development. A single board computer (SBC), EBX, EPIC or PC/104 format, installs on top of the unit and I/O device cables attach to the front panel for making connections easier.

FEATURES

- Low cost enclosure for prototype and development use
- Front connector panel for easy accessibility
- Lid accommodates up to two PC/104 boards on top of the SBC (or one expansion board with a dual-board computer)
- Provides full access to the top of the SBC

- Properly supports SBC for repeated insertion and removal of PC/104 expansion modules (without excess board flex)
- Protects system components during development
- Provides system portability during development
- Improves appearance of system for demonstration purposes

Accommodates:

- EBX, EPIC, PC/104, PC/104-*Plus*, and SUMIT SBCs
- PC/104 expansion boards
- 2.5" or 3.5" hard drive

- ATX style power supply
- 5.25" CD-ROM drive

MODELS

There are four models of the VL-ENCL-5, which accommodate computers with different interfaces and breakout boards. See KnowledgeBase article VT1630 - VL-ENCL-5 Models for VersaLogic SBCs for information on the appropriate VL-ENCL-5 model for your computer.

Model	Front Panel Cutouts	Drive Bays
VL-ENCL5a	COM (4), USB (4), LPT/floppy, PS/2 mouse, PS/2 keyboard, audio in, audio out, digital I/O, analog I/O, LEDs, reset button	One 3.5"/2.5" internal drive bay, one 5.25" external access drive bay.
VL-ENCL5b	COM (4), video out, LPT, PS/2 mouse, PS/2 keyboard, Ethernet (2), LEDs, reset button, speaker.	One 3.5"/2.5" internal drive bay, one external access 3.5" floppy drive bay, one 5.25" external access drive bay.
VL-ENCL5c	COM (4), video out, LPT, Ethernet, PS/2 (2) or USB (4), depending on cable used, LEDs, reset button.	Two 3.5"/2.5" internal drive bays, one 5.25" external access drive bay.
VL-ENCL5d	COM (2), USB (3), video out, audio in, audio out, power, LEDs, reset button.	Two 3.5"/2.5" internal drive bays, one 5.25" external access drive bay.

The back panel of all models includes cutouts for CompactFlash, Ethernet (2), video, USB (2), audio in, audio out, and mic.

Technical Specifications

Size:
13.12" W x 10.2" D x 4.5" H

Connector Panel:
Accommodates (depending on configuration) VGA, PS/2 keyboard and mouse, COM (4), LPT, RJ45 (Ethernet, 2), USB (4), sound and mic jacks, reset switch, LEDs (2), speaker, 50-pin cable exit slot, CompactFlash

Expansion Modules:
Accommodates two PC/104 boards on EBX and EPIC form factor SBCs (or one expansion board with a dual-board computer)

Material:
Light gauge steel

Finish:
Black powder coat

Accessories / Options

The following accessories and options for the VL-ENCL-5 are available from VersaLogic:

- VL-CDD-IDE1   CD-RW, DVD-ROM, Internal

- VL-ENCL-3HS   Handle set

- VL-ENCL5LID   Tilt lid for VL-ENCL-5

- VL-FDD-144   3.5" floppy drive, 1.44 MB

- VL-HDD-35-xx   3.5" hard drive

- VL-HDW-101   Metric standoff package - PC/104

- VL-HDW-105   Metric standoff package - SUMIT

- VL-HDW-201   PC/104 extractor tool

- VL-HDS35-320   320 GB 3.5" SATA hard drive

- VL-PS200-ATX   200 watt ATX style power supply

Recommended Tools

- ESD protected work area

- 3/16" and 7/32" hex drivers

- Flathead screwdriver

- Needle nose pliers

- Phillips screwdriver

Parts List

The enclosure includes the following hardware:

METAL PARTS

- Enclosure base
- Enclosure top
- Front panel
- Drive mounting bracket

HARDWARE

- Screws for assembly of metal parts

(15)	Enclosure attachment screw 4-40 x 1/4"
(2)	Enclosure attachment screw 6-32 x 3/8"

- Enclosure mounting feet for stability on the bench top

(4)	Rubber feet

- Hardware kit HDW-ENCL5 for the installation of circuit board hardware and devices

(7)	D-Sub jack screw sets for attaching connectors to front and rear panels
(20)	M3 nuts for use with hex standoffs
(12)	Black Phillips pan head screws, 6-32 x 1/4", for use in securing drives and devices
(32)	Phillips pan head screws, 3mm x 6mm, for use in securing drives and standoffs
(4)	5mm x 10mm M3 hex standoff for use in mounting EPIC paddle board
(12)	5mm x 15.24mm M3 hex standoff (brass with black oxide) for use in mounting SBC and paddle boards

Front and Back Panels

VL-ENCL-5 models have different front panels to accommodate various VersaLogic breakout board and connector configurations. Each front panel option is shown below.

VL-ENCL-5A Front Panel
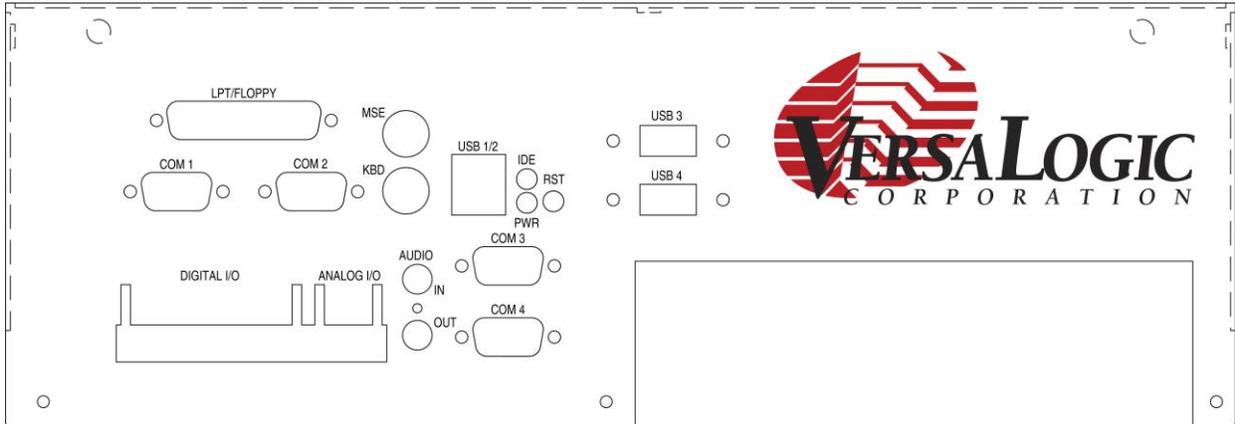


Figure 1. VL-ENCL-5A Front Panel

VL-ENCL-5B Front Panel
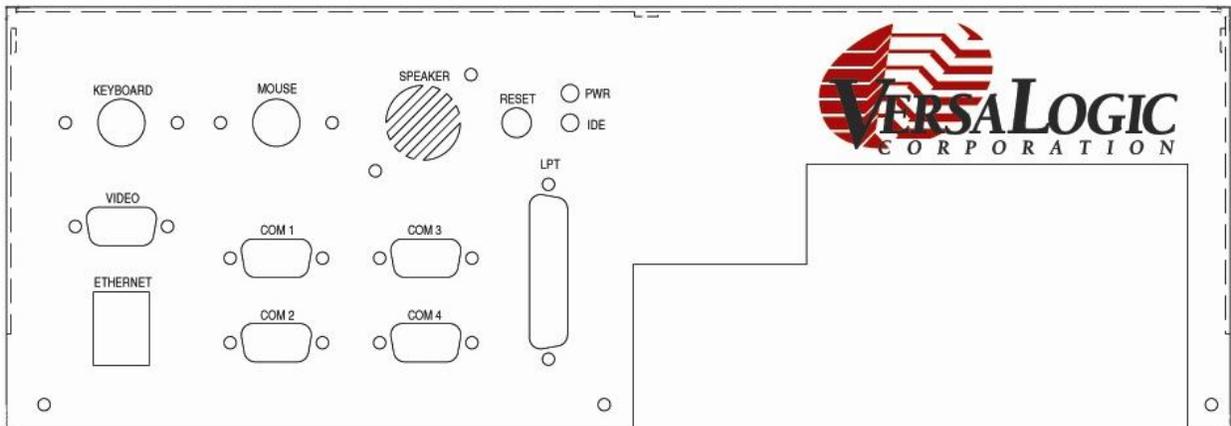

Figure 2. VL-ENCL-5B Front Panel

VL-ENCL-5C Front Panel
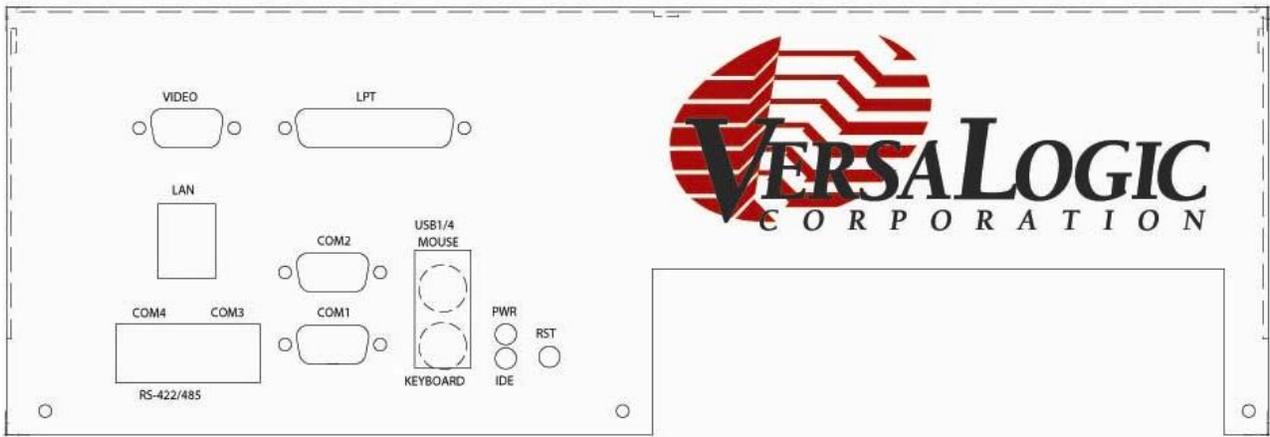
Figure 3. VL-ENCL-5C Front Panel

VL-ENCL-5D Front Panel
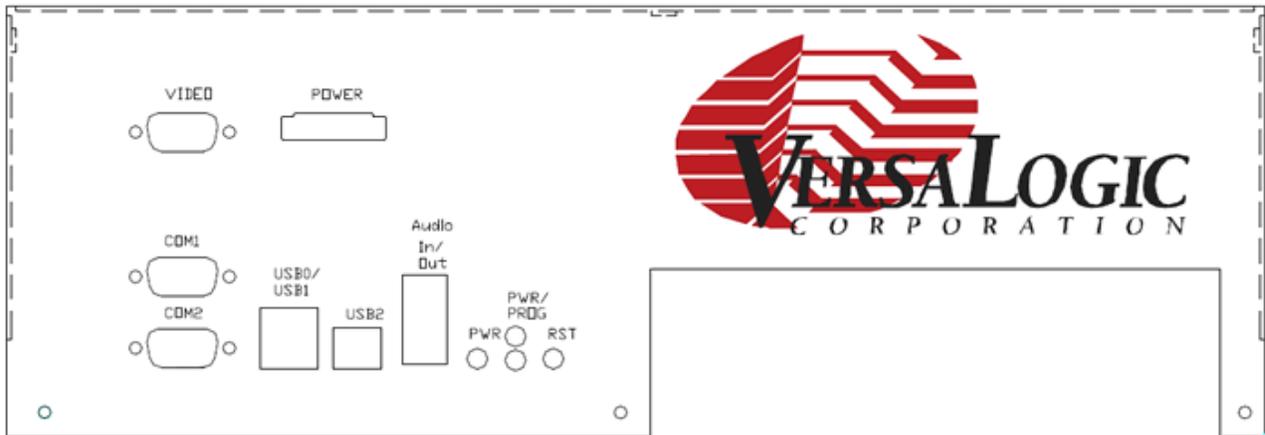

Figure 4. VL-ENCL-5D Front Panel
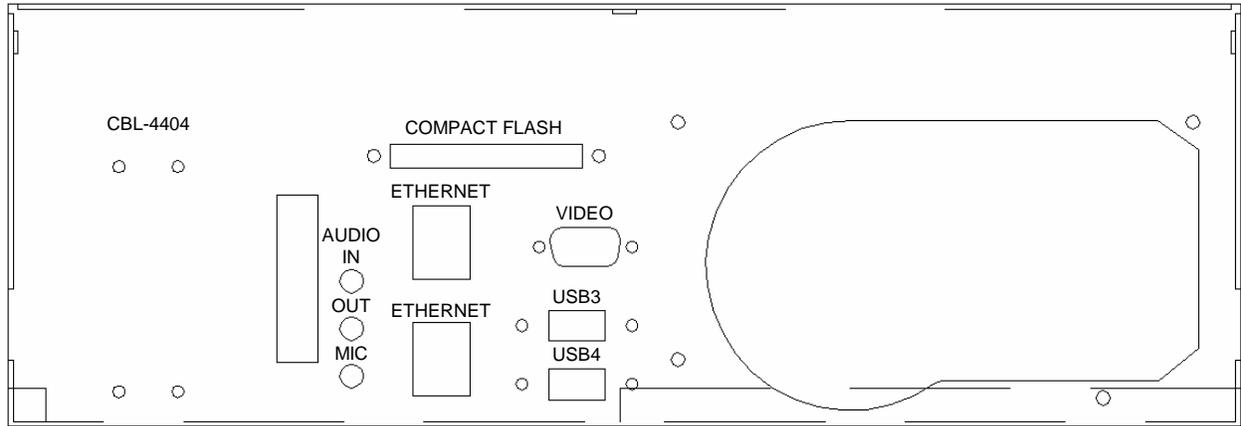
Figure 5. VL-ENCL-5 Back Panel (All Models)

Installation

Follow the procedure below to install a VersaLogic computer in the VL-ENCL-5. Skip any steps that do not apply to your computer or configuration.

The VL-ENCL-5B enclosure is shipped assembled to minimize cosmetic damage to the painted parts.

Procedure

1. <u>Remove the enclosure top and front panel</u>.

   The top of the enclosure is secured with eight screws. The front panel is secured with three screws.

2. <u>Install standoffs to the base of the VL-ENCL-5 to support the breakout board</u>.

   Breakout boards are typically secured using four 5mm x 15mm standoffs with four 3mm x 6mm screws.

   Note: The CBL/CBR-4004 breakout board can be mounted to the back panel using four 5mm x 10mm standoffs with 3mm x 6mm screws.

3. <u>Install the drives (HD, CD-ROM, FDD)</u>.

   - Install the CD-ROM drive in bottom bay. Secure it with eight 3mm x 6mm screws.
   - Install the floppy drive inside the middle bay. The front panel of the floppy drive should be flush with the front panel of the CD drive. Secure the floppy drive with six 3mm x 6mm screws.
   - Install the hard drive in the top bay. The drive's power and data connectors should point toward the back panel of the enclosure base. Secure 3.5" drives with six 3mm x 6mm screws from the sides, or a 2.5" drive with four screws from the top. Some drives use 6-32 x 1/4" screws, which are also supplied in the hardware kit.

4. <u>Attach the breakout board to the base</u>.

   Secure the breakout board to the standoffs installed in step 2 with four M3 nuts.

5. <u>Reinstall the front panel using the screws removed in step 1</u>.

6. <u>Secure the breakout board to the front panel</u>.

   Use three D-Sub jack screw sets to secure the breakout board to the front panel. If your application uses an additional breakout board (such as an industrial I/O board), secure it to the front panel with D-Sub jack screw sets.

7. <u>Install front and rear panel connectors</u>.

   Connectors to install can include VGA video, Ethernet, or others. These either snap into the appropriate cutouts or are secured with D-Sub jack screw sets.

8. <u>Install the ATX power supply</u>.

   Place the power supply inside the enclosure with the switch and fan positioned against the back panel of enclosure base. Use four 6-32 x 1/4" screws to secure the power supply to the back panel.

9. <u>Install the enclosure handles</u>.

   Secure the handles to the sides of the enclosure top with the screws provided.

10. Install standoffs to the top to support the computer.

The following figures show where to install standoffs to the top of the VL-ENCL-5 to support the computer.

Warning!   Be sure to use the correct size standoffs for your computer. SUMIT boards must use the standoffs and screws available as part number VL-HDW-105. These standoffs are 15.25 mm (0.60 inch), and must not be mixed with the 15.0 mm standoffs used for non-SUMIT boards. Using the standoffs available as VL-HDW-101 on SUMIT boards will result in damage to the board.
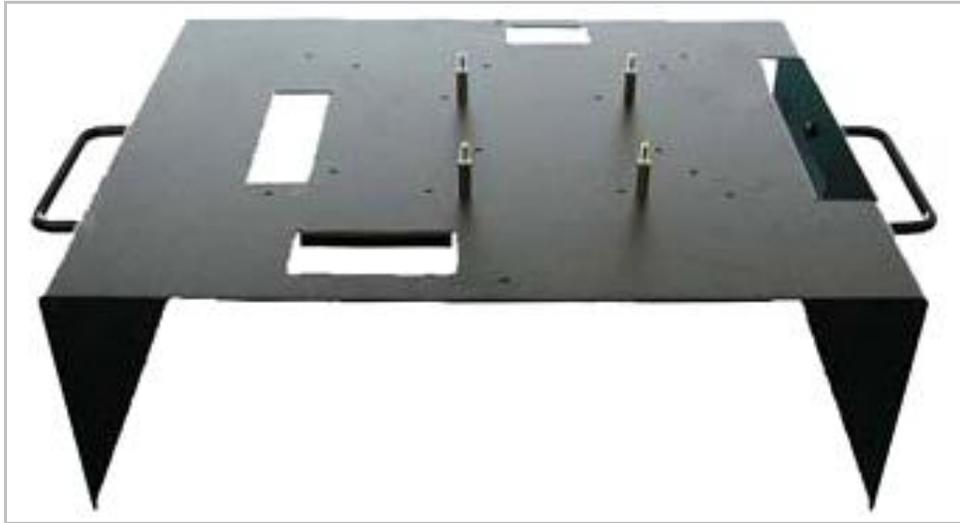

Figure 6. Standoff Positions for PC/104 Boards
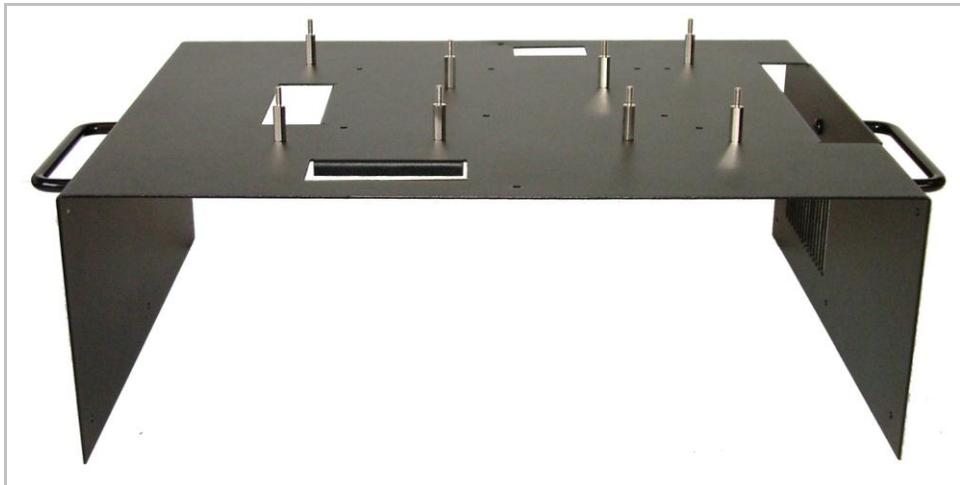
**Figure 7. Standoff Positions for EBX Boards**
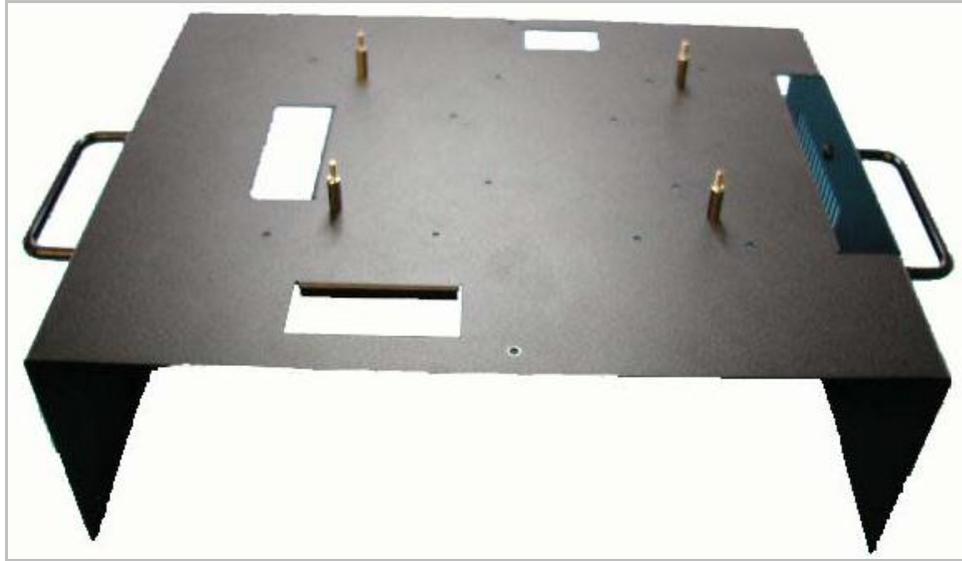
Figure 8. Standoff Positions for EPIC Boards

11. <u>Reinstall the enclosure top</u>.

    Thread the breakout board, back panel, power, and drive cables through the holes in the enclosure top while keeping the vent towards the drive bay. Place the top over the components and secure it with the screws removed in step 1.

12. <u>Attach the computer to the standoffs</u>.

    Place the board on the standoffs and use M3 nuts to secure the board to the enclosure.

    Dual-board computers: If your computer is a dual-board set, you must separate the two boards before securing it to the enclosure. After separating the boards, secure the south board to the enclosure, and then re-mate the dual-board set, using care not to bend any pins or misalign the inter-board connectors. Improper alignment could result in damage to the computer.

13. <u>Connect the cables</u>.

    See the reference manual for your computer for proper cable connections. The following figures show examples of complete installations of PC/104, EBX, and EPIC computers.
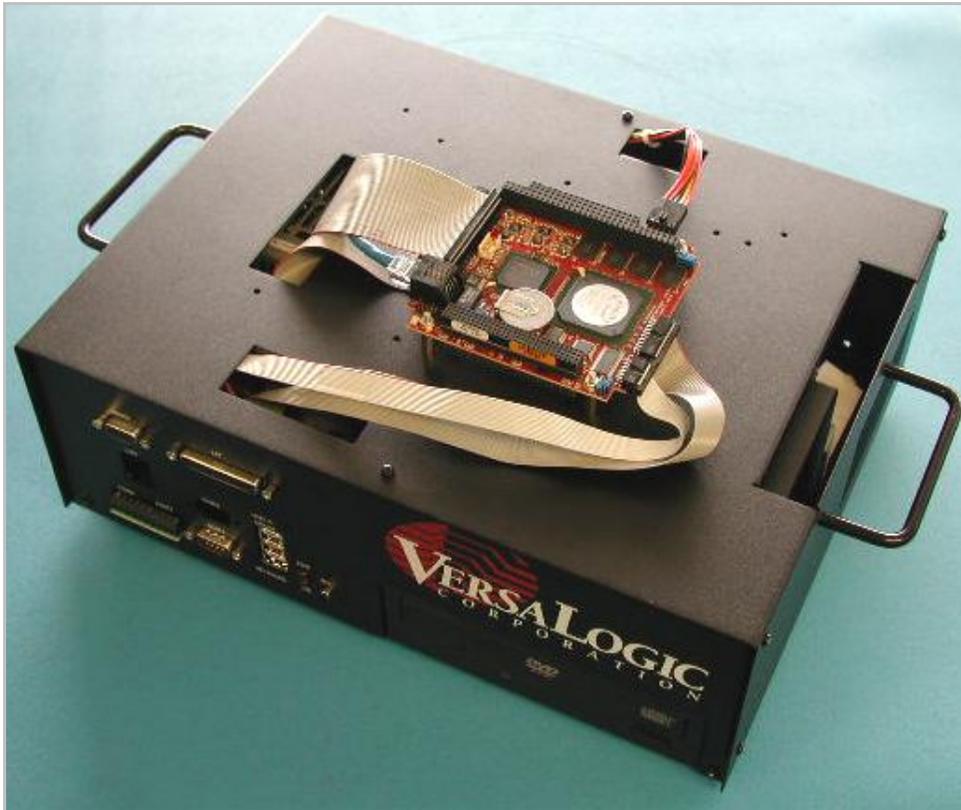
Figure 9. Example PC/104 Board Installation

Figure 10. Example EBX Board Installation

Figure 11. Example EPIC Board Installation

Enclosure Lid

The optional enclosure lid includes the following parts.

Metal Parts:

- Enclosure lid

Hardware:

(1)   3" strip double-sided foam tape 1/2"
(1)   36" strip double-sided foam tape 1/2"
(2)   Shoulder washers

Installation

The VL-ENCL-5 lid (VL-ENCL5LID) is shipped unassembled with the enclosure lid hardware kit. Follow the procedure below to install the lid.

1. Remove the two screws from the rear of top enclosure.

   These are two 6-32 x 3/8" screws that will be reused to install the lid.

2. Tape the front tabs.

   Cut the 3" foam tape in half and place it on the front tabs.

3. Mount the flat pane display.

   Cut the 36" foam tape into appropriate size strips and use it to mount the display.

4. Install the shoulder washers.

   Install one shoulder washer on each inside lid flange, on both sides of top.

5. Reinstall the lid using the screws removed in step 1.