HORIZON104

PC/104 rugged I/O 1U rack chassis

Horizontal PC/104 embedded industrial computer

Kontron is proud to introduce a new concept in industrial embedded rack chassis with its HORIZON104. The HORIZON104 combines the popular 1U rack chassis industrial computer with the popular embedded advantages of PC/104. Most 1U rack chassis are primarily a soft commodity that cater to the server market and few can tolerate more than a very ideal air conditioned environment. They also support few I/O boards. By combining Kontron's experience in both the PC/104 and the industrial rack mount industry, the HORIZON104 is designed for higher shock and vibration, higher temperature extremes and very low power required by applications in aircraft, vehicle, shipboard as well as remote powered or harsher industrial environments. Utilizing the concept of a horizontal PC/104 backplane,

the HORIZON104 is the only 1U rack chassis capable of five separate COTS industrial I/O boards. Now full data acquisition, monitoring, control and communications boards can be put in a single shallow 1U rack mount, saving valuable rack space.

PC/104 boards are small form factor COTS (commercial off the shelf) PC-based cards that incorporate both the ISA and PCI bus with stacking connectors instead of a PCB bus. Because of this PC/104 boards tend to use CMOS components for lower power and wider temperature operation. They also tend to be designed with less space waste than most standard PC boards. The stacking design utilizes four corners mounting to be secure in a vertical stack. HORIZON104 moves PC/104 in a horizontal plane by creating a horizontal backplane

- **True industrial 1U rack chassis**
- **1U x 19-inch shallow depth**
- **Five I/O COTS board capable**
- **Low power design**
- **0 ° to 60 °C standard operating temperature**
- **Internal 2.5-inch drive bay, front mount 5.25-inch**
- **Front or rear I/O capable**
- **Dual front filtered fan cooling**
- **Flexible I/O interfacing**

with one CPU plug-in location, two locations for PCI or ISA and three locations for ISA only. Each board is hard mounted to either the chassis or backplane with four screws at its corners, which make it stronger against shock and vibration than the traditional PC/104 stack or PCI/ISA PC boards held in place, by a single rear bracket screw. The PC/104 connectors have far more secure connections than traditional PC boards. By putting the low power boards in a horizontal plane, they can also be better cooled than the cramped stacked units or traditional 1U PCI/ISA systems. The HORIZON104 has two front mounted cooling fans drawn through an industrial re-usable filter with over 20CFM of cooling for this small 1U chassis in addition to the power supply fan. Because the PC/104 boards use so much less power, a full system barely uses half of the 100W power supply in the HORIZON104. This allows the HORIZON104 to have a tougher board and chassis design than any other rack mount 1U chassis on the market.

The HORIZON104 has one front mounted drive mount if required for CDROM, CD-ROM/floppy combo, or removable drive bay. An internal 2.5-inch drive bay provides either laptop or auto industry rugged hard drives

to be mounted. For solid state drive solutions the drive bay, PC/104 board slot, or USB can be used. PC/104 I/O exits the chassis from pre-made I/O panels internally reached from board cables. Six rear I/O panels and two front I/O panels allow flexible front and rear I/O solutions for both CPU I/O such as video, keyboard, mouse, USB, Ethernet, reset, speaker, serial and parallel connections. PC/104 I/O can be DB9, DB25, DB37, or ribbon cables as well as custom connectors. The user can then mount specific connectors where he wants them for his application as opposed to where the board slot is.

The HORIZON104 comes with 1U ATX type 100W 110/220 AC power supply with standard system operation temperature of 0 ° to 60 °C which is better than almost all 1U rack chassis on the market. The chassis was designed for optional extended temperature operation as well as various DC power options by special order. Basically the HORIZON104 is for the customer who wants the highest tempera-ture range, highest shock and vibration, lowest power use, and the most COTS I/O slots in an economical 1U 19-inch rack mount chassis on the market.

➤ HORIZON104 - Technical Specifications

Dimensions (W x H x D)
- 17(19 at ears) x 1.75 x 19-inch (432 x 45 x 483mm)

Disk Drive Capacity
- One 2.5-inch drive bay internal
- One 5.25-inch front mount drive bay

Cooling Fans
- Two 13CFM DC fans in front, 1U integrated power supply fan

Front Panel
- Power on LED, optional reset, keyboard, mouse, video, USB I/O

Rear Panel
- Power on/off switch, six I/O plates, power input connection

Construction
- 12 gauge front panel, 18 gauge CRS cold rolled steel gold zinc plated

Color
- Front panel cardinal paint, medium texture, water based Black #8102-08

Backplane
- One PC/104, PC/104-*Plus* CPU board slot
- Two either PC/104, PC/104-*Plus*, PCI-104 I/O slots
- Three PC/104 only I/O slots (one CPU and five I/O slots total)

Power Supply
- 100W @ 115/230AC, 50/60Hz, switch auto sensing (0 ° to 60 °C)
- 180W @ 115/230AC, 50/60Hz, switch auto sensing (0 ° to 40 °C)

Environmental
Operating Temperature
- 0 ° to 60 °C (32 ° to 140 °F) call on extended temperature

Non-Operating Temperature
- -40 ° to 70 °C (-40 ° to 158 °F)

Humidity
- 5 to 95% RHNC

Operating Altitude
- 10,000-feet (3048-meters)

Non-Operating Altitude
- 50,000-feet (15,240-meters)

Shock
- 30g acceleration peak (11ms pulse), higher specification by special order with different power source

Vibration
- 5 to 7Hz 0.5-inch double amplitude displacement; 7 to 2000Hz 2g acceleration
- Higher specification by special order with different power source

Agency Approvals
- FCC Class A
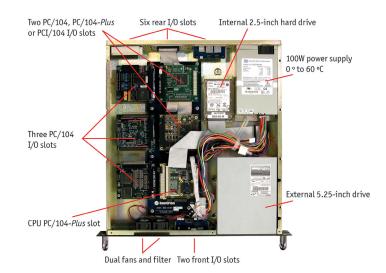- CE , UL

Ordering Guide
HORIZON104
- 1U chassis with PC/104 backplane, 100W AC supply

I/O Panel Options
IOPANEL-CPUIO
- Rear panel, cabling, PCB with connectors to support MOPS PC/104 CPU I/O for video, PS/2 keyboard/mouse, USB, reset, speaker

IOPANEL-CPUIO-F
- Front panel, cabling, PCB with connectors to support MOPS PC/104 CPU I/O for video, PS/2 keyboard/mouse, USB, reset, speaker

IOPANEL-2E1USB
- Rear panel, cabling, PCB with connectors to support MOPS PC/104 CPU I/O for two RJ45 10/100 Ethernet, second USB

IOPANEL-2DB9
- Panel with two DB9 cut-outs for serial

IOPANEL-DB25
- Panel with single DB25 cut-out for serial or LPT connector

IOPANEL-DB37
- Panel with single DB37 cut-out for I/O connector

IOPANEL-RB
- Panel with general purpose ribbon cable (up to 50-pin) access with strain relief

Accessories
7504-RMK18
- 18-inch rack slide kit

Two PC/104, PC/104-*Plus* or PCI/104 I/O slots — Six rear I/O slots — Internal 2.5-inch hard drive — 100W power supply 0 º to 60 ºC — Three PC/104 I/O slots — External 5.25-inch drive — CPU PC/104-*Plus* slot — Dual fans and filter — Two front I/O slots