3U High Density Compute Accelerator System (Dr. Know)

Terry Hou/Senior Director/Wiwynn
What’s Dr. Know?

A High Performance Compute Accelerator Pool

Features

• Resource pool can be connected up to 4 host nodes
• Support up to 16 PCIe compute accelerators (Xeon Phi, GPGPUs, FPGAs)
• 4 PCIe Drawers for easy service/maintenance
• On Chassis BMC management
• Integrated PSUs with 2+1 redundant
Modular baseboard design for each drawer

- 97 lanes PCIe switch on baseboard
- 1 x16 host inputs connector and 5 x16 outputs (4 x16 standard PCIe slots and 1 x16 for cascading).
- 4 additional power connectors for higher power GPGPU cards

4 Xeon Phi Cards

4 GPGPU Cards
On-chassis Management

Monitor
- Temperature
- Voltages
- Power Consumption

Control
- Fan Speed
- LEDs

Interface
- Dedicate 1G NIC
- I2C to hosts
Application Field of Dr. Know

To provide Xeon Phi/GPGPU/FPGA pool for:

• **HPC Workloads**
  • Scientific Computing
  • Financial Services

• **Deep Learning**
  • AI
  • Image Processing
  • Data Analysis
Application Configuration

4 Xeon Phi/GPGPU/FPGA compute powers on each drawer dedicated to each host
Application Configuration:

8 Xeon Phi/GPGPU/FPGA compute powers for each host through cascading ports

2 Hosts with 16 cards
One more PCIe Re-timer with external mini-SAS HD cable can realize the 16 cards to one host supporting
Only one external mini-SAS HD cable can realize the 16 cards to one host supporting.
Dr. Know for 19" Rack

Vendor: belpower
Model: TET3000-12-069RA

Vendor: FCI
Model: Customized

Chassis
PSU
Power bar
Fan module
IOM
AC Board
Drawer
LED board
Base board
Phi or GPGPU
Fan module
488mm
131.5mm
800mm
124mm
680mm
88mm
Extendable to 21” OCP Rack

* RU: Rack Unit 1.75” height
* OU: Open Unit 1.8” height
Dr. Know for OCP 21” Rack

Additional option kits are needed to install Dr. Know in OCP 21” rack

<table>
<thead>
<tr>
<th>No.</th>
<th>Option Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Extension kit</td>
</tr>
<tr>
<td>2</td>
<td>Front IO board</td>
</tr>
<tr>
<td>3</td>
<td>Extension Cable</td>
</tr>
<tr>
<td>4</td>
<td>Bus bar clip</td>
</tr>
<tr>
<td>5</td>
<td>Rear Panel</td>
</tr>
</tbody>
</table>

- Rear Panel
- Bus bar clip
- Extension kit
- Front IO board
- Fan module
- Extension Cable
Optional Baseboard Design

- To have 8 x 8 standard PCIe slots for flash cards
  - Total support up to 32 cards in the system