# M1032W
# Engineering Workstation

# Container Contents

**Included in container**

The list below shows components included in an M1032W Engineering Workstation container.

- M1032W Engineering Workstation
- Chassis mounting rails and hardware
- GPU graphics card
- Mini-DisplayPort-to-DisplayPort cables ($\times$ 2 or $\times$ 4 *depending on configuration*)
- Power cable
- TERA2 PCoIP® host card
- This *Quick Start Guide*
- GPU and motherboard documentation

**Not included**

The list below shows items not included with an M1032W Engineering Workstation.

- PCoIP zero client(s)
- Monitors
- Ethernet cables
- Keyboard and mouse

# M1032W Overview and Features

**M1032W overview**

The M1032W Engineering Workstation is a 1U, GPU-optimized, high-performance engineering workstation based on the Intel® C612 chipset. The list below shows M1032W features.

- Intel Xeon® E5-2600 v3-series processor (up to 10 cores and 145 W)
- 8 × DIMM slots, 288-pin DDR4, 1.2 V
- Up to 256 GB DDR4 ECC RDIMM at 2133, 1600, or 1333 MHz
- Up to 512 GB DDR4 ECC LRDIMM at 2133, 1600, or 1333 MHz
- Supports 64-GB, 32-GB, 16-GB, 8-GB, 4-GB, and 2-GB DIMMs
- 6 × 2.5-inch SATA hot-swap drive bays
- RAID support:
  - 0, 1, 5, and 10 on Windows® operating systems
  - 0, 1, and 10 on Linux® operating system
- 3 × Ethernet ports (2 × LAN ports and 1 × dedicated IPMI port)
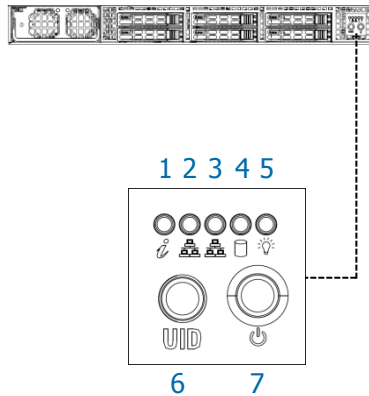- Support for IPMI 2.0

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# M1032W Overview and Features, Continued

**M1032W front panel**

The picture and table below show indicators and buttons on the front panel of an M1032W.
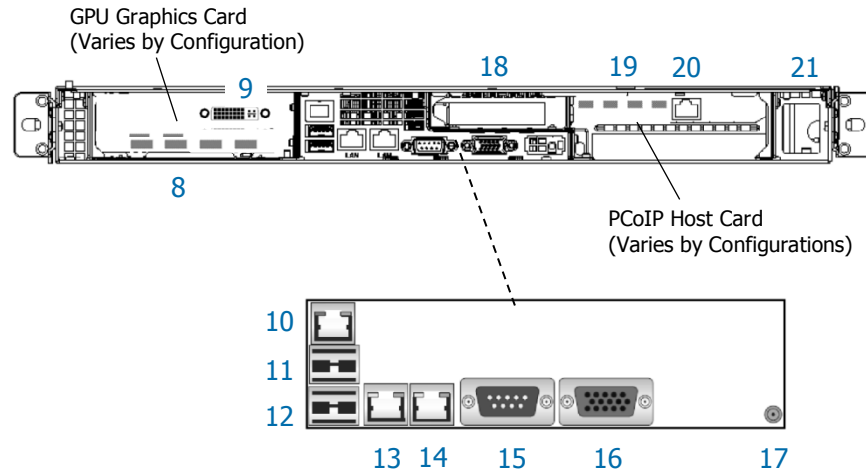


| | Indicator or Button | Description |
|---|---|---|
| 1 | Information LED | Information. Shows several states: |

| Status | Description |
|---|---|
| Red, continuous | Overheat condition. Check cables. |
| Red, flashing (every second) | Fan failure. Check fan. |
| Red, flashing (every 4 seconds) | Power failure. Check power supply. |
| Blue, continuous | Local Unit Identifier (UID) button has been pressed. Use to aid identification in rack mount. |
| Blue, flashing | Remote UID is on. Use to identify unit from remote location. |

| | Indicator or Button | Description |
|---|---|---|
| 2 | NIC 2 | **Flashing:** network activity. |
| 3 | NIC 1 | **Flashing:** network activity. |
| 4 | HDD | **Flashing:** hard disk drive activity. |
| 5 | Power (*Indicator*) | **Continuous:** power is supplied to M1032W. |
| 6 | UID (*Button*) | Unit Identifier. Press to illuminate blue LEDs on front panel and rear of chassis to ease identification in rack mounts. LED remains on until button is pressed again. |
| 7 | Power (*Button*) | Press to power on and power off M1034W. |

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# M1032W Overview and Features, Continued, Continued

**M1032W rear ports and connectors**

The picture below shows ports, connectors, and buttons on the rear of an M1032W.



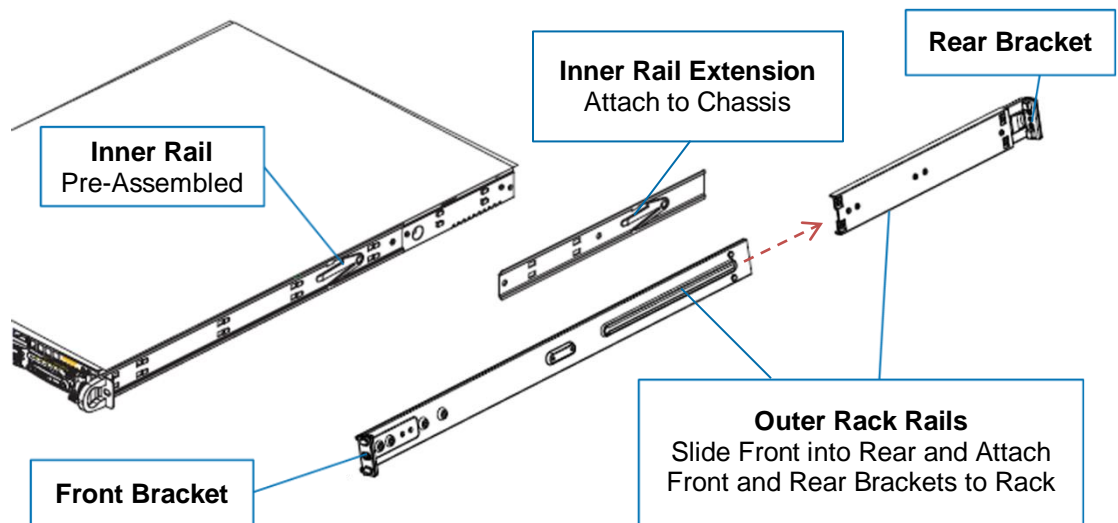| | | Description |
|---|---|---|
| 8 | **GPU Graphics Card** | DisplayPorts (*number varies by configuration*) |
| 9 | | Dual-link DVI-I port (× 1, *not on all configurations*) |
| 10 | Dedicated IPMI LAN port | |
| 11 | USB 3.0 port 0 | |
| 12 | USB 3.0 port 1 | |
| 13 | Ethernet LAN 1 port | |
| 14 | Ethernet LAN 2 port | |
| 15 | COM port | |
| 16 | VGA port | |
| 17 | Unit ID Button (press to illuminate LED for visual identification in rack) | |
| 18 | Optional fiber NIC | |
| 19 | **PCoIP Host Card** | Mini DisplayPorts (× 2 or × 4, *number varies by configuration*) |
| 20 | | Dedicated PCoIP LAN port |
| 21 | Power connector | |

# Rack Rails and Mounting

**Rack rail components**

Two rack rail assemblies are included with an M1032W Engineering Workstation. Each assembly has two sections:

- **Inner rails:** attach to the workstation chassis (the inner rail is pre-attached), and

- **Outer rack rails:** attach to rack

The picture below shows the inner chassis rails and the outer rack rails.
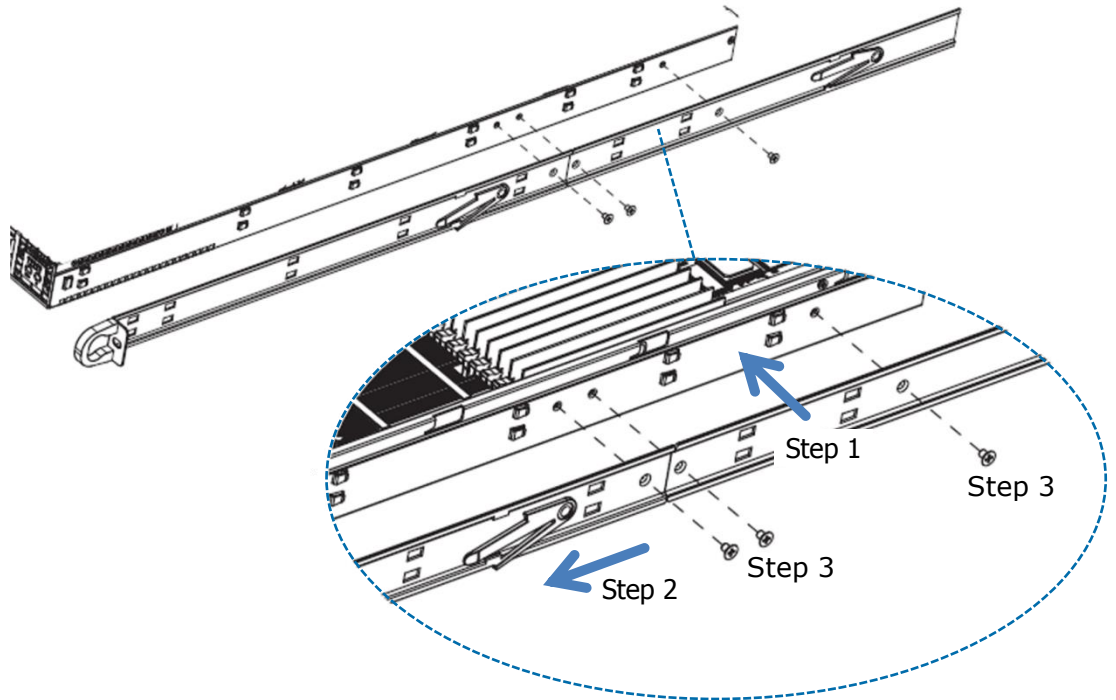


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**Install inner rail extensions**

The picture and table below show how to attach and secure the inner rail extensions.



| Step | Action |
|------|--------|
| 1 | Align the hooks on the side of the chassis with the slots on the inner rail extension. |
| 2 | Slide the extension rail toward the front of the chassis. |
| 3 | Secure the extension rail with the screws provided. |
| 4 | Repeat these steps to attach the other extension rail on the other side of the chassis. |

**Next step:** assemble outer rack rails.

**Assemble outer rack rails**

Outer rack rails consist of two sections: a longer front section and a shorter rear section. Slide these together to assemble the rail.

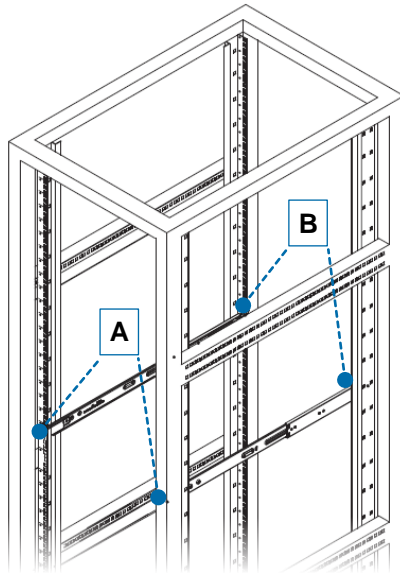| Step | Action |
|------|--------|
| 1 | Identify the left and right outer rack rails by examining the ends (brackets). These brackets bend outward as shown in "Rack rail components." |
| 2 | Slide the front section of the outer rack rail into the rear outer rack rail as shown in "Rack rail components." |
| 3 | Repeat these steps to assemble the other outer rack rail. |

**Next step:** install outer rack rails in a rack.

# Rack Rails and Mounting, Continued

**Install outer rack rails**

The picture and table below shows how to install the assembled outer rack rails in a rack.



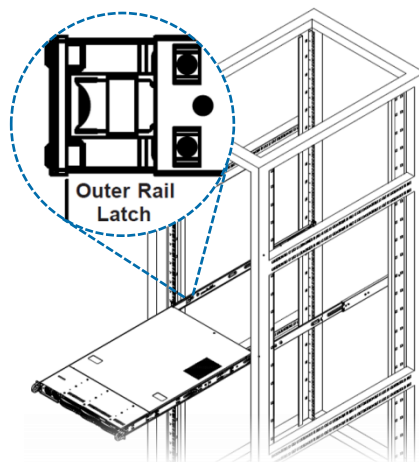| Step | Action |
|------|--------|
| 1 | Adjust the outer rack rails so that the outer rails fit snugly in the rack. |
| 2 | Align the holes on the front of the outer rail with the holes on the front of the rack and secure with the screws provided (see **A** in the adjacent picture). |
| 3 | Align the holes on the rear of the outer rack rail with the holes on the rack and secure with the screws provided (see **B** in the adjacent picture). |
| 4 | Repeat these steps with the other outer rack rail assembly. |

**Next step:** Install the workstation in a rack.

**Installing in rack**

To install an M1032W Engineering Workstation in a rack:

1. While carefully lifting the workstation, slide the inner rail extensions into the front of the outer rack rails.

2. Push the workstation into the rack until it clicks into the locked position.

**Removing from rack**

This picture and table below show how to remove an M1032W Engineering Workstation from a rack.



1. Press the outer rack rail latch to release the workstation chassis (the latch is shown in the adjacent picture).

2. Carefully slide the chassis forward off of the outer rack rails and out of the rack.

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# Setting up an M1032W Engineering Workstation

**M1032W cabling**

This section shows how to connect cables. Numbers in parentheses correspond to labels shown in "M1032W front panel" and in "M1032W rear ports and connectors" to ease identification.

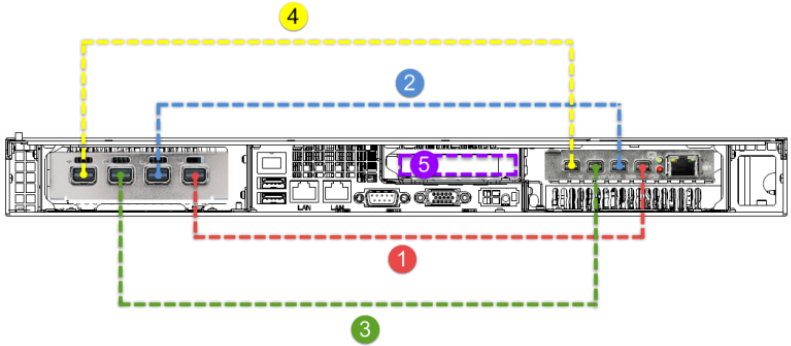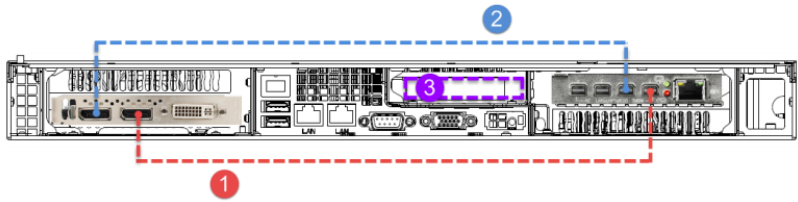| Step | Action |
|------|--------|
| 1 | Install the included **mounting rails** to the server chassis and then install the chassis in a rack. |
| 2 | From the rear of the chassis, use the included video cables to route video from the PCoIP host card to the GPU. Use the included DP-to-mini-DP cables. "Cabling diagrams" below shows pictures of every GPU and PCoIP Host Card combination. Find your configuration in the table's Card Configuration column and connect cables as shown in the corresponding picture. |
| 3 | Connect an Ethernet cable to the dedicated **PCoIP LAN port** (20) and connect the other end to a network router or switch. |
| 4 | Optionally, connect one or more Ethernet cables to the **LAN ports** (13) and (14) on the rear of the chassis and connect the other end of the cable(s) to a network router or switch. |
| 5 | If your configuration includes a fiber NIC (18), connect a fiber Ethernet cable to the **Fiber NIC** (18) on the rear of the chassis and connect the other end of the cable to a network router or switch. |
| 6 | Optionally, connect one or more Ethernet cables to the **Dedicated IPMI port** (10) on the rear of the chassis and connect the other end of the cable to a network router or switch. |
| 7 | From the rear of the chassis, connect the included **power cable** to the **power connector** (21) on the rear of the server, and connect the power cable to a power outlet. |
| 8 | From the front of the chassis, press the **power button** (7) to power on the server. |

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# Setting up an M1032W Engineering Workstation, Continued

**Cabling diagrams**

This section shows how to connect cables between the GPU and PCoIP Host Card for each M1032W configuration. Connect video cables on the rear of your workstation according to the configuration you ordered. In the table below, DP indicates DisplayPort and Mini-DP indicates mini-DisplayPort.
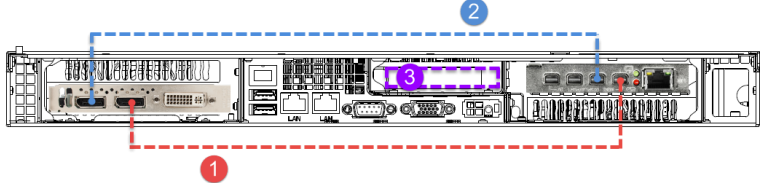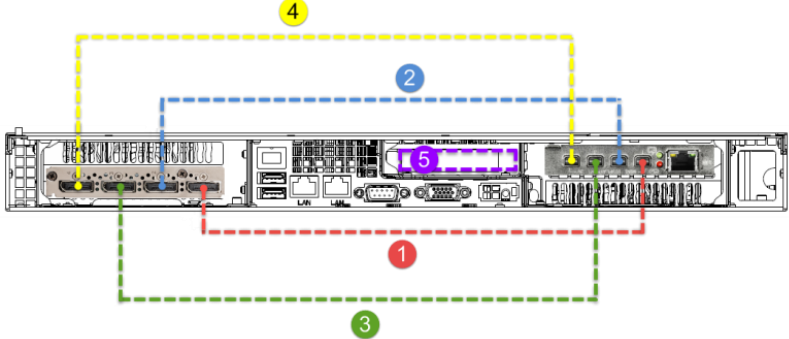
**NOTE:** Host card mini-DP ports are ordered from 1 (*rightmost*) to 4 (*leftmost*). Be sure to use ports as shown below when connecting cables from the host card to the GPU (using different ports can cause display issues).

| Card Configuration | Displays | Resolution | Diagram |
|---|---|---|---|
| K1200 GPU and Quad PCoIP Host Card | 4 | 1920 × 1200 | ① GPU DP #1 to Host Card Mini-DP #1 <br> ② GPU DP #2 to Host Card Mini-DP #2 <br> ③ GPU DP #3 to Host Card Mini-DP #3 <br> ④ GPU DP #4 to Host Card Mini-DP #4 <br> ⑤ Optional Fiber NIC |
| | 2 | 2560 × 1600 |  |
| K2200 GPU and Quad PCoIP Host Card | 2 | 2560 × 1600 | ① GPU DP #2 to Host Card Mini-DP #1 <br> ② GPU DP #3 to Host Card Mini-DP #2 <br> ③ Optional Fiber NIC <br>  |

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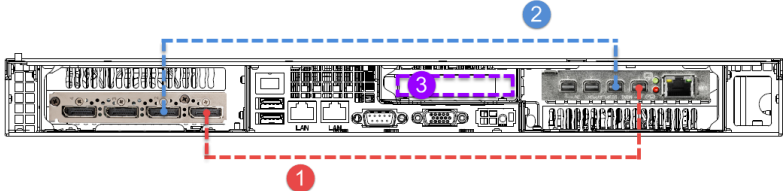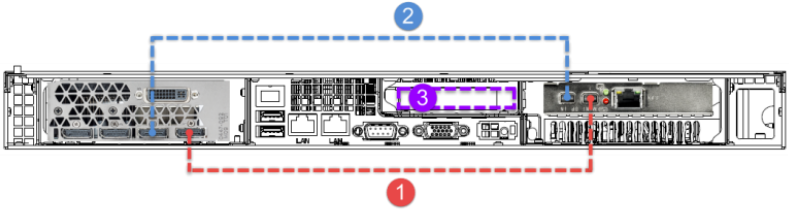# Setting up an M1032W Engineering Workstation, Continued

Cabling diagrams (continued)

| Card Configuration | Displays | Resolution | Diagram |
|---|---|---|---|
| K2200 GPU and Dual PCoIP Host Card | 2 | 1920 × 1200 | ① GPU DP #2 to Host Card Mini-DP #1<br>② GPU DP #3 to Host Card Mini-DP #2<br>③ Optional Fiber NIC |
| | 1 | 2560 × 1600 |  |
| M4000 GPU and Quad PCoIP Host Card | 4 | 1920 × 1200 | ① GPU DP #1 to Host Card Mini-DP #1<br>② GPU DP #2 to Host Card Mini-DP #2<br>③ GPU DP #3 to Host Card Mini-DP #3<br>④ GPU DP #4 to Host Card Mini-DP #4<br>⑤ Optional Fiber NIC |
| | 2 | 2560 × 1600 |  |

# Setting up an M1032W Engineering Workstation, Continued

Cabling diagrams (continued)

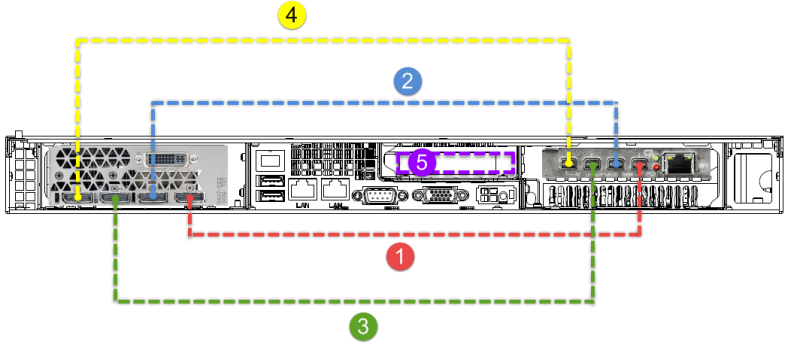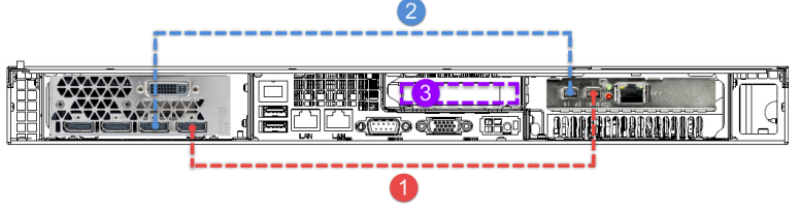| Card Configuration | Displays | Resolution | Diagram |
|---|---|---|---|
| M4000 GPU and Dual PCoIP Host Card | 2 | 1920 × 1200 | ① GPU DP #1 to Host Card Mini-DP #1<br>② GPU DP #2 to Host Card Mini-DP #2<br>③ Optional Fiber NIC<br> |
| | 1 | 2560 × 1600 | |
| M5000 GPU and Dual PCoIP Host Card | 2 | 1920 × 1200 | ① GPU DP #1 to Host Card Mini-DP #1<br>② GPU DP #2 to Host Card Mini-DP #2<br>③ Optional Fiber NIC<br> |
| | 1 | 2560 × 1600 | |

# Setting up an M1032W Engineering Workstation, Continued

**Cabling diagrams** (continued)

| Card Configuration | Displays | Resolution | Diagram |
|---|---|---|---|
| M5000 GPU and Quad PCoIP Host Card | 4 | 1920 × 1200 | **1** GPU DP #1 to Host Card Mini-DP #1<br>**2** GPU DP #2 to Host Card Mini-DP #2<br>**3** GPU DP #3 to Host Card Mini-DP #3<br>**4** GPU DP #4 to Host Card Mini-DP #4<br>**5** Optional Fiber NIC |
| | 2 | 2560 × 1600 |  |
| M6000 GPU and Dual PCoIP Host Card | 2 | 1920 × 1200 | **1** GPU DP #1 to Host Card Mini-DP #1<br>**2** GPU DP #2 to Host Card Mini-DP #2<br>**3** Optional Fiber NIC |
| | 1 | 2560 × 1600 |  |

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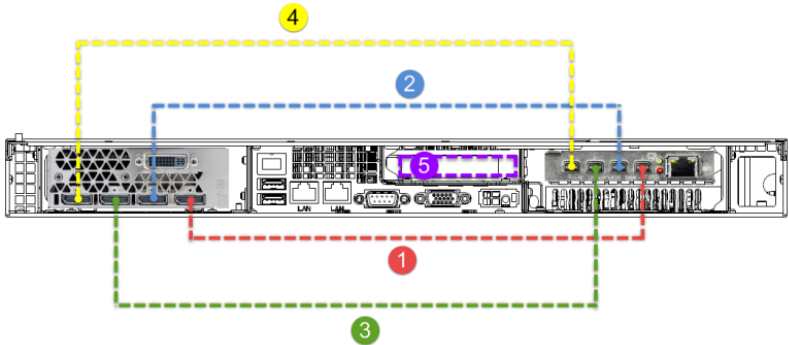# Setting up an M1032W Engineering Workstation, Continued

**Cabling diagrams** (continued)

| Card Configuration | Displays | Resolution | Diagram |
|---|---|---|---|
| M6000 GPU and Quad PCoIP Host Card | 4 | 1920 × 1200 | **1** GPU DP #1 to Host Card Mini-DP #1<br>**2** GPU DP #2 to Host Card Mini-DP #2<br>**3** GPU DP #3 to Host Card Mini-DP #3<br>**4** GPU DP #4 to Host Card Mini-DP #4<br>**5** Optional Fiber NIC |
|  | 2 | 2560 × 1600 |  |

**Power option**

Press the **power button** (7) on the front of the chassis to power on and power off a workstation. Standby power is present when a workstation is powered off.

**PCoIP host card settings**

M1032W Engineering Workstations contain a PCoIP host card that requires an IP address. The IP address can be assigned by a DHCP server or be a static IP address. Note that:

- **DHCP enabled** is the default PCoIP host card configuration.

- A *fallback IP address* is used when DHCP is enabled and the host card does not receive an IP address within 120 seconds.

- **192.168.1.101** is the host card's Fallback IP Address.

- You can access the host card's browser-based Administrative Interface to disable DHCP mode (or to perform other configuration and session-related actions). Enter the DHCP-assigned or the fallback IP address (shown above) in a Web browser on the same network as the workstation.

See *PC-over-IP System User's Guide* for more information about host card and zero client configuration.

**Next step:** You can now connect a zero client to the same network that the workstation is on and connect the devices.

# BIOS Access and VGA Output

### Accessing the BIOS

This section shows how to access the M1032W BIOS. It assumes the BIOS is set to the default video configuration, which sends video to the off-board, add-on video card. Before performing these steps, note the MAC address of the PCoIP host card in the workstation to which you are connecting.

| Step | Action |
|------|--------|
| 1 | Connect a zero client to a network switch on the same subnet as the M1032W workstation. (See your zero client's *Quick Start Guide* for more information about setting up your zero client.) |
| 2 | Connect a keyboard to the rear of the workstation. |
| 3 | Power on the workstation. Press the **DELETE** key for approximate 35 seconds to enter BIOS setup. |
| 4 | From the zero client's on-screen display, click **Connect**. |
| 5 | When the zero client shows the discovered PCoIP host cards, select the **MAC address** of the host card in the workstation, and then click **OK**. When the zero client establishes a PCoIP session, it displays the BIOS setup screen. |

The section below shows how to change the workstation's VGA output setting so you can connect a local VGA monitor.

### Enabling VGA output

The M-Series Engineering Workstation BIOS includes two options for VGA video output: *onboard* (which sends video to the onboard VGA adapter and rear VGA port) and *offboard* (which sends video to the add-on video card, or GPU). The default VGA setting is offboard, which sends video to the add-on video card.

The table below shows how to change the VGA Priority setting so users can view video from a locally-connected VGA monitor.

| Step | Action |
|------|--------|
| 1 | Begin by accessing the BIOS as shown in "Accessing the BIOS" above. After accessing the BIOS, continue by performing the steps below. |
| 2 | From the BIOS setup screen, use the keyboard arrow keys to select the **Advanced** tab. |
| 3 | Select **PCIe/PCI/PnP Configuration** and press the **ENTER** key. |
| 4 | Select **VGA Priority** and press the **ENTER** key. |
| 5 | Select **Onboard** and press the **ENTER** key. |
| 6 | Press the **F4** key to save your changes and exit. Select **Yes** and then press **ENTER**. <br><br> If installed, the workstation boots to the installed operating system. |
| 7 | Connect a VGA monitor to the rear of the workstation. You can now view video from the connected VGA monitor. |

### More local management options

Note that for local management, you can connect a USB keyboard and mouse to the workstation, remove the video cable connecting the PCoIP Host Card and the GPU on the rear of the workstation, and connect a monitor directly to the GPU.

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# Related Information and Support

The table below shows additional documents about workstation configuration, operation, and maintenance.

| For information about … | See … |
|---|---|
| Zero client configuration and connecting to M1032W Engineering Workstation | *Quick Start Guide* included with your zero client and *PC-over-IP System User's Guide* |
| Creating custom operating system images | *Tech Bulletin TB00265, Operating System Image Requirements* |
| GPU video card configuration | GPU *Quick Install Guide* included in the workstation package |
| PCoIP device (host card and zero client) configuration and administration | *PC-over-IP System User's Guide* |

Documentation is located at http://www.clearcube.com/support/.

## Contacting Support

| Web | www.clearcube.com/support/ |
|---|---|
| Email | support@clearcube.com |
| Toll-free | (866) 652-3400 |
| Direct | (512) 652-3400 |

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