Lenovo ThinkSystem Digital 2x1x16 KVM Switch
Product Guide (withdrawn product)

The Lenovo ThinkSystem Digital 2x1x16 KVM Switch is a high performance digital KVM (keyboard, video, mouse) switch that provides two IT administrators with remote access and control of 16 servers over the network with BIOS-level functionality. ThinkSystem Digital 2x1x16 KVM Switch is completely hardware and OS-independent, and users can troubleshoot and reconfigure servers even when servers are down.

The switch has 16 target ports and supports up to 2 remote users and 1 local user.

Figure 1. Lenovo ThinkSystem Digital 2x1x16 KVM Switch (front and rear)

Did you know?

The ThinkSystem Digital 2x1x16 KVM Switch provides cost-effective remote management, access, and security capabilities with out-of-band access to servers all from a single appliance. Connections to the target servers from the switch use low-cost and flexible CAT-5 cables for convenience and durability.

Part number information

Ordering information is shown in the following table.

Withdrawn from marketing: The ThinkSystem Digital 2x1x16 KVM Switch is now withdrawn from marketing.

Table 1. Part numbers and feature codes

Part number	Feature code	Description
1754D1T	1754-HC6 B38J	ThinkSystem Digital 2x1x16 KVM Switch
4X97A11107	B38F	ThinkSystem Dual-USB Conversion Cable for Digital KVM
4X97A11109	B38D	ThinkSystem Single-USB Conversion Cable for Digital KVM
4X97A11108	B38G	ThinkSystem VGA to DVI Conversion Cable

The Digital 2x1x16 KVM Switch includes the following components:

- 16-port console switch
- Rack mounting hardware to mount the switch in a 1U rack space
- 2x power cables, 1 meter length, C13-C14 connectors
- Publications flyer

Each of the Conversion cable parts listed in the table include the following components:

- One Conversion cable
- Publications flyer

The digital console switches enable you to share one workspace (keyboard, mouse, and display) across many target systems. The target systems are connected to the console switch via CAT-5 cables and the appropriate USB conversion option at the target end. Conversion options are available from Lenovo with a VGA connector and either one or two USB connectors.

The following figure shows the Single-USB Conversion Cable (4X97A11109) and Dual-USB Conversion Cable (4X97A11107).

Single-USB cable: The Single-USB Conversion Cable (4X97A11109) is withdrawn.

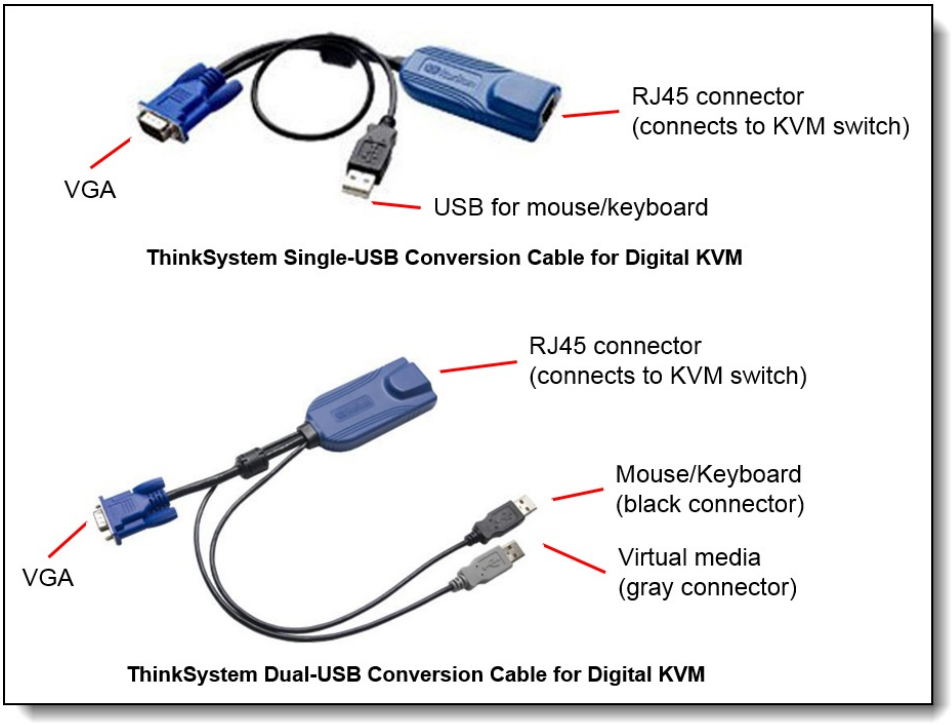

Figure 2. ThinkSystem Single-USB and Dual-USB Conversion Cables for Digital KVM

The VGA to DVI Conversion Cable, 4X97A11108, can be used with the local console connection (see below) if you are using a monitor with a VGA cable. The VGA to DVI cable is shown in the following figure.

For details on when to use the VGA to DVI Conversion Cable, see this support tip: https://datacentersupport.lenovo.com/us/en/solutions/ht510707

Figure 3. ThinkSystem VGA to DVI Conversion Cable, 4X97A11108

Connections

The following figure shows the connections on the rear of the Digital 2x1x16 KVM Switch.

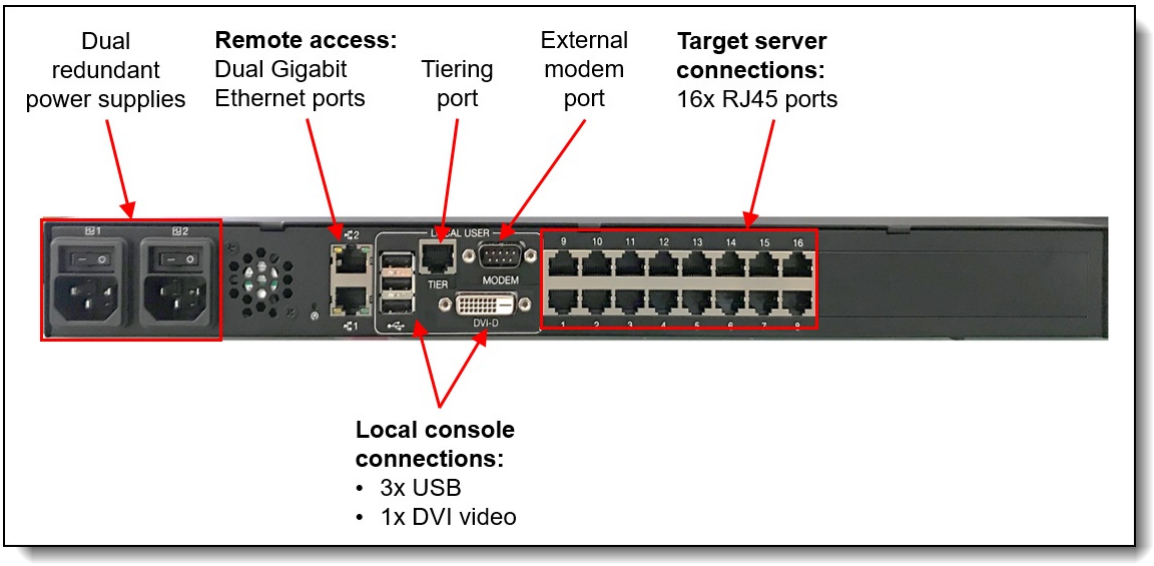

Figure 4. Connections on the rear of the Digital 2x1x16 KVM Switch

The following figure shows the front of the Digital 2x1x16 KVM Switch.

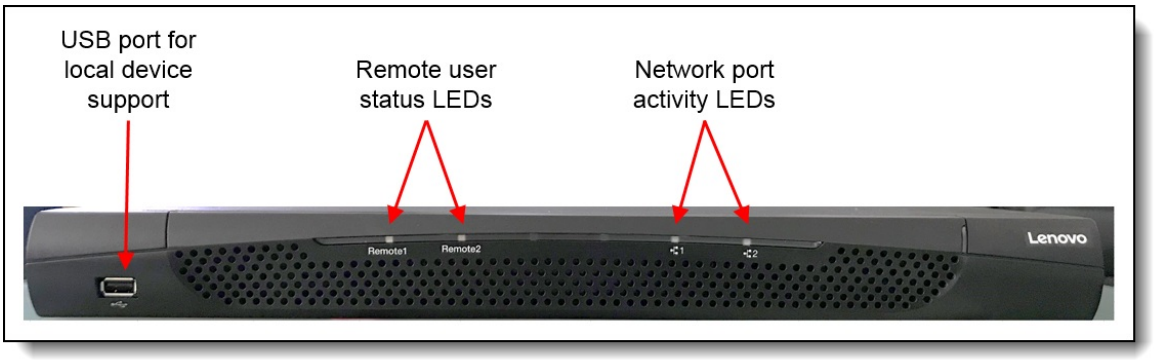

Figure 5. Connections on the front of the Digital 2x1x16 KVM Switch

Features

Details about the features of the Digital 2x1x16 KVM Switch are as follows.

Target systems:

The Digital 2x1x16 KVM Switch has 16 target system ports. Up to 16 servers can be connected to the KVM switch from these ports using standard CAT-5 cables with RJ45 connectors. At each target server end, conversion cables are used to convert the RJ45 connector to VGA and USB connectors:

- Single-USB Conversion Cable for Digital KVM provides a VGA connector and one USB connector. This cable provides video, keyboard and mouse signals and is used when you do not wish to implement tiering.
- Dual-USB Conversion Cable for Digital KVM provides a VGA connector and two USB connectors. This conversion cable is required if you wish to implement tiering.

Tip: Both conversion cables support virtual media.

These conversion cables are shown in Figure 2.

Up to 16 servers can be directly connected to the KVM switch. You can increase the number of connected target systems by using a two-tiered arrangement of switches (as described in the). Tiering allows up to 256 target servers to be accessible from one Digital 2x1x16 KVM Switch.

Local user connection:

The Digital 2x1x16 KVM Switch supports connectivity using the DVI and USB ports on the rear of the KVM switch. If a monitor with a VGA cable is used, you can optionally use the VGA to DVI Conversion Cable, 4X97A11108, which converts the DVI connection to a VGA connection. The keyboard and mouse are connected using two of the USB ports at the rear of the KVM switch.

Two additional USB 2.0 ports (1 rear, 1 front) are provided for the attachment of devices such as optical drives or memory keys. These devices can be made available on remote target systems as virtual media. Note, however, that the of virtual media is not supported with tiering.

The KVM switch provides an options menu where you can switch between target systems and perform other management functions. Access to the menu is by pressing Scroll Lock twice. Additional hot keys provide additional functions as described in the user's guide.

Remote access over Ethernet:

Remote access to console switch and to the target systems is via a Web browser (default IP address is 192.168.0.192). The switch provides agentless remote control and access. No special software or drivers are required on the attached servers or client. Access is normally via a standard Ethernet network, requiring that the console switch be connected to the network via one or both Ethernet ports. Connecting both ports provides redundancy.

Local and remote user interfaces:

The management interface for the Digital 2x1x16 KVM Switch is browser-based, and is accessible both locally and remotely. You can use the local management interface by connecting directly to the local port and pressing Scroll Lock twice. You can also use the remote browser interface to manage your switch. The browser interface is launched directly from the switch, and any devices connected to the switch are automatically detected. The local and remote user interfaces share a similar look and feel.

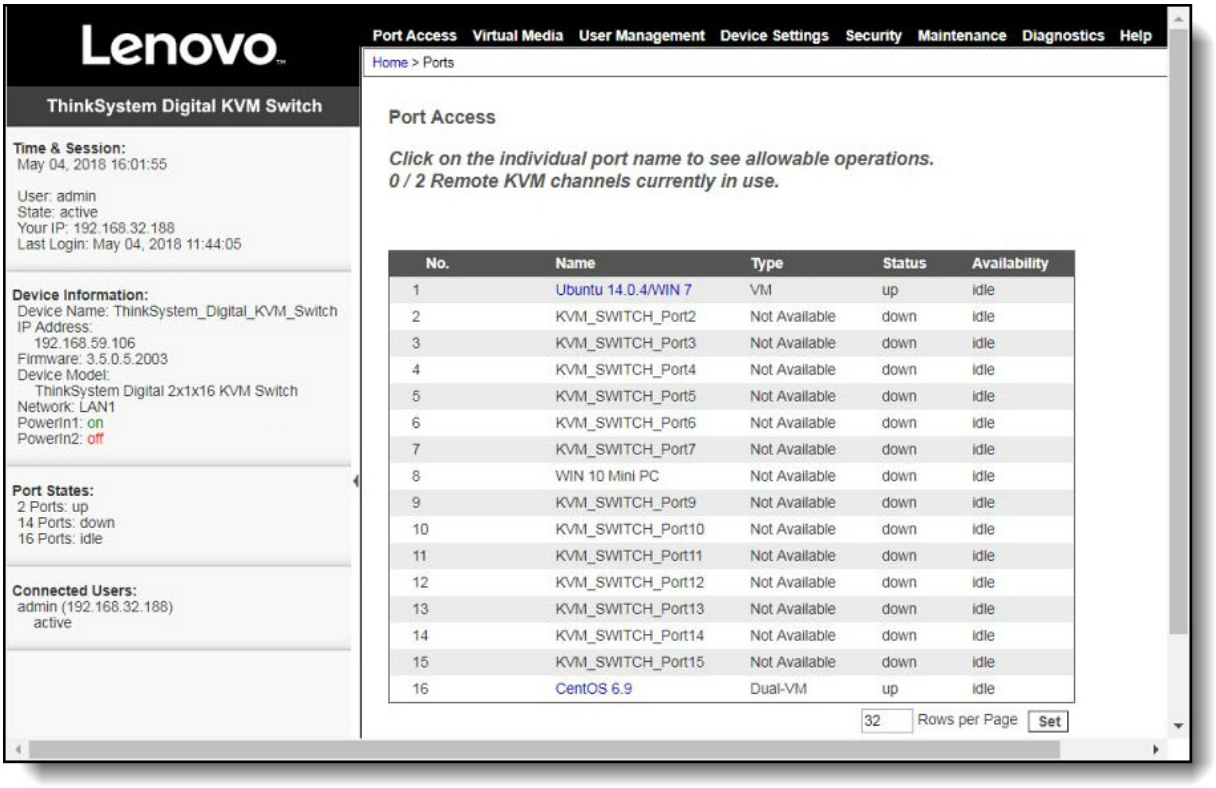

Figure 6. ThinkSystem Digital KVM Switch management interface

Virtual Media:

The Digital 2x1x16 KVM Switch supports virtual media. Any devices connected to the USB ports on the KVM switch (for a local console session) or connected to the remove user workstation (for remove console sessions) can be made available to the target server. With this feature, you can install software; install, upgrade, or recover the operating system; update the BIOS code; or boot the target system from a USB drive. Virtual media sessions are secured using 128 or 256 bit AES encryption.

The following virtual media types are supported for Windows and Linux systems:

- Internal and external hard drives
- Internal and USB-mounted CD and DVD drives
- USB mass storage devices
- PC hard drives
- ISO images (disk images)
- Digital audio devices

Use of external authentication servers and smart cards to authenticate access:

The Digital 2x1x16 KVM Switch supports Lightweight Directory Access Protocol (LDAP), Active Directory, and RADIUS for integration with existing authentication/security models. This ensures that you maintain only one set of user credentials and can maintain strict password rules.

The switch also allows you to use smart cards to ensure access is authorized. Smart cards are pocket-sized cards that store and process information. Smart cards such as the Common Access Card (CAC) can be used to store identification and authentication to enable access to computers, networks, and secure rooms or buildings. Smart card readers are connected directly to the switch via one of the USB ports, or they can be connected to any remote workstation that is running the remote browser interface or DSView management software and is connected to the switch using an Ethernet connection.

Note: For smart card use, the target device must be connected to the console switch using the Dual-USB Conversion Cable, part number 4X97A11107.

Use of encryption:

The Digital 2x1x16 KVM Switch has an embedded FIPS 140-2 validated cryptographic module to provide 256-bit AES encryption of KVM session traffic, including video, keyboard, mouse, virtual media and smart card data.

Tiered consoles:

A single Digital 2x1x16 KVM Switch can directly connect to up to 16 target servers. The switch also supports a two-tier or cascaded configuration where one top-level switch can connect to 16 other second-level switches. Such a configuration allows up to 256 target servers to be managed from the single top-level switch.

The use of tiering requires Dual-USB Conversion Cables on the target systems.

To form this configuration, the 16 servers ports on the top-level switch are connected to RJ45 ports labeled "Tier" on each of the second-level switches (see the Connections section for the location of this port on the rear of the switch).

Note: Virtual media, smart card and audio are not supported with tiering.

Specifications

The ThinkSystem Digital 2x1x16 KVM Switch has the following specifications:

- Based on the Raritan Dominion KX III KVM switch
- Supports 2 remote users and 1 local user concurrently
- Local user connections are USB mouse & keyboard and a DVI video port; 2 additional USB 2.0 ports (1 front, 1 rear) available for media support
- Allows connectivity up to 16 directly connect servers via Cat-5 cables and USB Conversion Cables
- Supports two-tier configurations so that up to 256 servers can be managed from user interface
- Front panel LEDs allow for monitoring of network status and remote user status
- Web browser management interface for local and remote consoles, enabling easy switching (default hot-key is Scroll Lock)
- Virtual media support allowing tasks such as installing software, OS installs or firmware updates to be performed remotely
- Password security ensures only authorized access to managed servers
- Support for external authentication services via LDAP, Active Directory, and RADIUS.
- Fully encrypted traffic with 256-bit AES encryption and FIPS 140-2 compliance
- Smart card / CAC authentication — local and remote
- Servers can be labeled with meaningful names for quick identification and selection
- Keyboard hot keys for common user functions
- “Keep-alive” technology maintains non-stop server operation, even in the event of power loss
- AutoSkip function to bypass inactive channels; AutoScan computers at variable rates
- Upgradeable firmware
- SNMP v2 and v3 management, Syslog, Email alerts
- Dual power supplies and dual Ethernet connections for redundancy
- Maximum video resolution: 1920 x 1080 at 60Hz
- Input power: 100-240 Vac, 1.8 A

Comparison with the GCM16 console switch

The following table compares the Digital 2x1x16 KVM Switch with the GCM16 console switch.

Table 2. Comparison of features

Feature	Digital 2x1x16	GCM16
Model	1754D1T	1754D1X
Number of local concurrent users	1	2
Number of remote concurrent users	2	2
Local user connections - KVM	DVI + 2x USB	VGA + 2x USB
Local user connections - total USB	4 (1 front, 3 rear)	4
Maximum number of target systems - Direct	16	16
Maximum number of target systems - Daisy-chained	Not supported	256
Maximum number of target systems - Tiered configuration	256	1024 (2 levels)
Maximum video resolution	1920 x 1200	1600 x 1200 standard 1680 x 1050 widescreen
User interface	Web GUI (local and remote)	Web GUI (local and remote)
Central management	Yes	Yes
IPv6 support	Yes	Yes
User Authentication via user database in console switch	Yes	Yes
User Authentication via remote LDAP server	Yes	Yes
Encryption	FIPS 140-2	AES
Manage serial devices	No	Yes
Smart Card or Common Access Card support	Yes	Yes
Support for USB Conversion Cables	Yes	Yes
Support for Serial Conversion Cables	No	Yes
Virtual media	Yes	Yes
Virtual media support with Tiering	No	Yes
Gigabit Ethernet (10/100/1000 Mbps)	Two ports†	Two ports†
Serial port	No	Yes
Modem port for out-of-band access	Yes	Yes
Firmware upgrades to the console switch	Yes	Yes
Firmware upgrades to the COs	Yes	Yes
Input power	100-240V, 50/60 Hz	100-240V, 50/60 Hz
Redundant power supplies	Yes	Yes

† Ethernet ports are redundant for increased availability

Physical specifications

The ThinkSystem Digital 2x1x16 KVM Switch has the following specifications:

- Height: 44 mm (1.73 inches): 1 rack unit (1R)
- Width: 440 mm (17.3 inches)
- Depth: 334 mm (13.2 inches)
- Weight: 4.1 Kg (9.1 lb)

Operating environment

The switch is supported in this environment:

- Temperature:
  - Operating: 0° to 45°C (32° to 113°F)
  - Non-operating: -20° to 60°C (-4° to 140°F)
- Relative humidity:
  - 0% to 85%

Warranty

The ThinkSystem Digital 2x1x16 KVM Switch has a three-year limited warranty.

Server support

The ThinkSystem Digital 2x1x16 KVM Switch is supported with any target server with a VGA port.

The local console requires a USB mouse and keyboard and a monitor with a DVI cable (a VGA cable is also supported in conjunction with the VGA to DVI Conversion Cable, 4X97A11108).

Rack support

The ThinkSystem Digital 2x1x16 KVM Switch occupies 1U of rack space in a rack cabinet. The KVM switch includes a mounting backet to mount the unit in the rack.

Related publications and links

For more information, refer to these documents and websites:

- Rack & Power Infrastructure Options page
  https://lenovopress.com/lp0766-rack-power-infrastructure-options
- Lenovo Press Product Guides for console switches and console kits:
  https://lenovopress.com/servers/options/kvm
- ThinkSystem Digital 2x1x16 KVM Switch User's Guide
- Raritan Dominion KX III product page
  https://www.raritan.com/products/kvm-serial/kvm-over-ip-switches/enterprise-ip-kvm-switch

Related product families

Product families related to this document are the following:

- KVM Switches & Consoles

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