The science behind the report:

Increase security, sustainability, and efficiency with robust Dell server management tools

This document describes what we tested, how we tested, and what we found. To learn how these facts translate into real-world benefits, read the report Increase security, sustainability, and efficiency with robust Dell server management tools.

We concluded our hands-on testing on February 17, 2024. During testing, we determined the appropriate hardware and software configurations and applied updates as they became available. The results in this report reflect configurations that we finalized on February 17, 2024 or earlier. Unavoidably, these configurations may not represent the latest versions available when this report appears.

System configuration information

Table 1: Detailed information on the systems we tested.

System configuration information	Dell PowerEdge R760	Supermicro SYS-221H-TNR
BIOS name and version	Dell 1.8.2	Supermicro 1.4
Non-default BIOS settings	Intel Turbo Boost enabled, virtualization enabled	Intel Turbo Boost enabled, Virtualization enabled
Date of last OS updates/patches applied	02/17/2023	02/15/2024
Power management policy	Balanced (initial) / Performance (post-test)	Balanced (initial) / Performance (post-test)
Processor		
Number of processors	2	2
Vendor and model	2 x Intel® Xeon® Gold 6454S CPU @2.20GHz	Intel Xeon Gold 6454S CPU @2.2GHz
Core count (per processor)	32	32
Core frequency (GHz)	2.20	2.2
Stepping	8	8

System configuration information	Dell PowerEdge R760	Supermicro SYS-221H-TNR
Memory module(s)		
Total memory in system (GB)	256	256
Number of memory modules	16	16
Vendor and model	Hynix® SYS-221H-TNR	Micron MTC10F1084S1RC48BA1
Size (GB)	16	16,384
Type	DDR5	DDR5
Speed (MHz)	4,800	4,800
Speed running in the server (MHz)	4,800	4,800
Storage controller		
Vendor and model	Dell PERC H965i Front (Embedded)	Broadcom® SAS 3908
Firmware version	17.15.08.00	5.240.02-3768
BIOS version	-	7.24.01.0_0x07180100
Local storage		
Number of drives	6	6
Drive vendor and model	Samsung® MZILG1T6HCJRAD3	Micron 5400 MTFDDAAK1T(TGB
Drive size (GB)	1,500	1,787
Drive information (speed, interface, type)	24 Gbps, SAS, SSD	6Gb SATA SSD
Network adapter		
Vendor and model	1x Broadcom Gigabit Ethernet BCM5720 1x Broadcom Adv Dual 10GBASE-T Ethernet 1x Broadcom BCM57504 4x25G SFP28 PCIE	Supermicro Dual-Port 1-Gigabit Ethernet Adapter AOC-SGP-i2 (2x RJ45)
Number and type of ports	2 x 1GbE, 2 x 10GbE, 4 x 25GbE	2 x 1 GbE
Driver version	22.31.6, 22.31.13.70, 22.31.13.70	8.50
Cooling fans		
Vendor and model	Dell Silver	Supermicro
Number of cooling fans	6	4
Power supplies		
Vendor and model	Dell 06C11WA02	Supermicro PWS-1K24A-1R
Number of power supplies	2	2
Wattage of each (W)	1,400	1,200

How we tested

Enabling dynamic USB ports

Dell iDRAC (41 seconds)

1. Log into iDRAC.
2. Navigate to Configuration → System Settings.
3. Expand Hardware Settings → Front Ports. Toggle Front USB port to Enabled/Disabled from iDRAC9. Click Submit.
4. To confirm, click OK.

Supermicro IPMI (2 minutes, 51 seconds)

1. Log into the Supermicro IPMI.
2. Launch the remote console.
3. Click the drop-down menu on the far left, and select Power → Power Reset.
4. Within the remote console, at the prompt, press Del to enter setup.
5. From the BIOS Screen, select Advanced → Chipset Configuration → South Bridge → Legacy USB Support, and select one of the options (Enabled, Disabled, or Auto).
6. Save the settings and reboot to apply the changes.

Changing a BIOS configuration item

Dell iDRAC (32 seconds)

1. Log into iDRAC.
2. Navigate to Configuration → BIOS Settings.
3. Expand System Profile Settings and select Performance from the pull-down menu beside System Profile. Click Apply, and click OK to confirm.
4. Scroll down and click At Next Reboot. Click OK to confirm.

Supermicro IPMI (2 minutes, 38 seconds)

1. Log into the Supermicro IPMI.
2. From the left menu, click Remote Control.
3. Click Launch Console.
4. Click the power icon on the upper right side of the remote console. Select Power Cycle, and click Apply.
5. IPMI will display a post screen within the remote console.
6. When the message in the Post screen prompts you to, press the Del key to run Setup.
7. Using the arrow keys, navigate to Advanced → CPU Configuration → Advanced Power Management Configuration, and set the values for Power Technology to Custom, Power Performance Tuning to BIOS Controls EPB, and ENERGY_PERF_BIAS_CFG Mode to Performance. Press F4 to save and exit. Select Yes to confirm, and press Enter to reboot.

Updating firmware

Scheduling automatic updates on Dell iDRAC

1. Log into iDRAC.
2. Navigate to Maintenance → System Update → Automatic Update. Click the Enable Automatic Update option.
3. For Server Reboot type, select Schedule Updates and Reboot Server.
4. Select HTTPS location. The default HTTPS address is downloads.dell.com.
5. In the Update Window Schedule section, specify the start time for the firmware update and the frequency of the updates (daily, weekly, or monthly).
6. Click Schedule Update.
7. Click OK to confirm.

Manually updating firmware on Supermicro IPMI (1 minute, 6 seconds)

1. Download firmware from https://www.supermicro.com/en/support/resources/downloadcenter/firmware/MBD-X13DEM/BMC
2. Extract the contents of the bundle to a directory on your local computer.
3. Locate the archive for the component you want to update (BMC), and extract to a directory on your local computer.
4. Log into the Supermicro BMC controller.
5. Select Maintenance → Firmware Management.
6. Select the component you want to update (BMC). Leave all sections checked, and click Next.
7. Click Select File.
8. Browse to the BMC folder you extracted, and select the .BIN file. Click Open.
9. Click Upload.
10. After the file finishes uploading, verify the upgrade from the old version to the new, and click Update.

Read the report at https://facts.pt/4Ba8zAu ▶

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