TOSHIBA

FS20000R model 200/100

Onsite Industrial Server
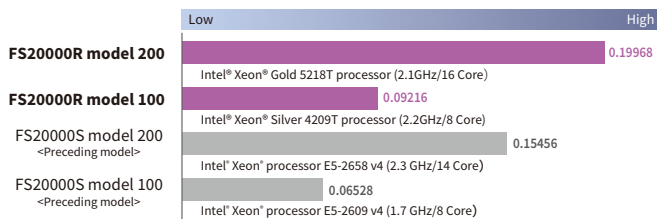## Realizing High Performance and High Capacity

Points of Improved Performance and Function

Equipped with Intel® Xeon® scalable processor

Can be equipped with up to two Intel® Xeon® Gold 5218T processors (2.1 GHz/16 cores) or Intel® Xeon® Silver 4209T processors (2.2 GHz/8 cores) as CPU.

CPU performance comparison

	Low — High	
FS20000R model 200	Intel® Xeon® Gold 5218T processor (2.1GHz/16 Core)	0.19968
FS20000R model 100	Intel® Xeon® Silver 4209T processor (2.2GHz/8 Core)	0.09216
FS20000S model 200 <Preceding model>	Intel® Xeon® processor E5-2658 v4 (2.3 GHz/14 Core)	0.15456
FS20000S model 100 <Preceding model>	Intel® Xeon® processor E5-2609 v4 (1.7 GHz/8 Core)	0.06528

Weighted maximum performance (in APP value) Unit: Effective tera

＊1 The above is a comparison of the weighted maximum performance (in APP value) released by Intel, and there may be differences from the above depending on your system.

Equipped with High-Speed, High-Performance Memory

Up to 192 GB of DDR4 SDRAM high-speed memory can be installed for each CPU, providing high system performance.

Equipped with Gigabit Ethernet interfaces (6 ports)

Equipped as standard with 6 Gigabit Ethernet (10BASE-T/100BASETX/1000BASE-T automatic switching) ports. (Supports Wake-on-LAN)

High-speed/high-capacity storage

Can be equipped with a combination of 3.5-inch high-capacity HDDs using a highly reliable SAS interface and/or 2.5-inch SSDs using a SATA interface with superior read performance depending on use.

Supports a GPU board

Assuming installation of a GPU (graphics processing unit) board to perform high-speed graphic processing, we enhanced the cooling structure inside the chassis and ensured sufficient power supply.

＊2 An auxiliary power supply (8-pin) cord is available as an option.

Remote Monitoring and Control Function

The system is equipped with a BMC (Baseboard Management Controller) device conforming to IPMI (Intelligent Platform Management Interface) V2 standards. This makes it possible, using a browser from another computer on the network, to check hardware information (CPU temperature, temperature in the chassis, fan rotation speed, and internal voltage), shut down the OS and perform power ON/OFF control.
In addition, the iKVM function allows you to operate the keyboard/mouse and display the local RGB output screen so that you can change the BIOS settings and check logs on the OS. Furthermore, the Virtual Media function makes it possible to reset OS to the factory settings or update software.
Those operations can be performed from other computers on network.

Reliable Technology Supporting Stable Operation

Technology and Quality for Supporting 24-Hour Continuous Operation

High-quality, long-life parts are used, based on assumption of 24-hour continuous operation. The hardware is designed with derating taken into account. Thorough quality control is ensured by testing individual units at the component level, then conducting function testing in the user shipment configuration for all shipped products, and temperature tests to determine that product specifications are fully satisfied (in the temperature range of 5°C to 40 °C).

Uses Memory with ECC/Mirroring Functions

The system has memory with an ECC function for detecting and correcting single-bit errors. It also supports memory mirroring＊3 to protect data from issues such as multi-bit errors that cannot be corrected with the ECC function, thereby supporting stable system operation.

＊3 To use this function, the memory of the same capacity must be installed in the specified memory bank.

Good Maintainability and Protective Structure

Life parts (HDD, SSD, cooling fan, battery, power supply unit in redundant configuration) can be easily replaced.

Examples of Replacement

Front-end Replacement of Storage Devices

Cooling Fans replacement

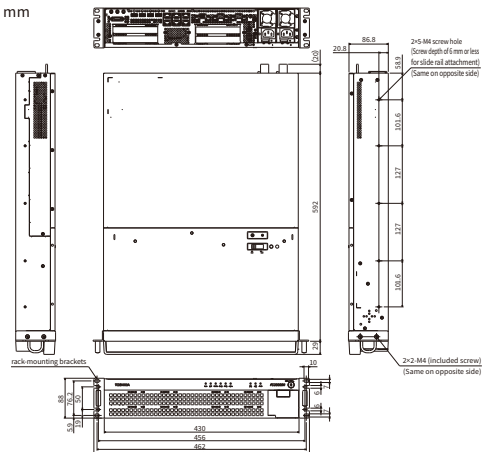**Battery Replacement**

Rear-end Replacement of Power Supply Units

Operation Error Prevention

AC Power Cable Clamp

Dimensions

Unit: mm

Specifications

Product Name		FS20000R model 200				FS20000R model 100			
Processor	Main Processor	Intel® Xeon® Gold 5218T Processor 2.1GHz				Intel® Xeon® Silver 4209T Processor 2.2GHz			
	Number of CPU sockets	1CPU		2CPU		1CPU		2CPU	
	Hyper-Threading setting	Disabled	Enabled	Disabled	Enabled	Disabled	Enabled	Disabled	Enabled
	No. of Cores/No. of Threads	16/16	16/32	32/32	32/64	8/8	8/16	16/16	16/32
	Level 2 Cache Memory Capacity	1 MB/Core (built into main processor)							
	Level 3 Shared Cache Memory Capacity	22 MB (built into main processor)				11 MB (built into main processor)			
	No. of Processors	Up to 2 processors mountable							
Chipset		Intel® C621 Chipset							
Main Memory *1	Capacity	With 1 CPU: Min. 8 GB (8 GB × 1), Max. 192 GB (32 GB × 6) With 2 CPUs: Min. 16 GB (8 GB × 2), Max. 384 GB (32 GB × 12)							
	Memory Check Method	ECC							
	Memory Mirror *2	Compatible							
	Memory Interleave *2	Compatible							
	Type	DDR4 SDRAM							
	Operating Speed *3	DDR4-2667/PC4-21333				DDR4-2400/PC4-19200			
Auxiliary Storage	Storage drive *4	Options (Refer to Optional Hardware Specifications)							
RAID Compatible		RAID 1/5/10							
Interface	COM Interface	RS-232C (9-pin D-SUB) × 2ch							
	Graphic Interface	RGB×1ch BMC (Baseboard Management Controller) Chip with built-in graphics function							
	LAN Interface	10BASE-T/100BASE-TX/1000BASE-T (Auto Negotiation) (RJ45) × 6ch / Wake On LAN (main unit port only compatible) Out of 6 channels, the settings of one channel can be switched from either "normal use" or "shared with remote monitoring ch."							
	Sound Interface *5	LINE IN/LINE OUT/MIC IN (3.5φ mini jack)							
	USB Interface *6	USB3.2 Gen 1 × 6 ports (front 2/rear 4)							
	DI/DO Interface	Digital input/output (half pitch 20-pin) DI 4 points, DO 4 points, remote ON/OFF 1 point, remote initialize 1 point							
Expansion Interface	PCI Express slot *7	4 slots							
	PCI Express (x16)	2 slots (full size)							
	PCI Express (x8)	1 slot (half size)							
	PCI Express (x8)	1 slot (1 CPU: full size, 2 CPU: half size)							
Input Device	Keyboard	Options (refer to Optional Hardware Specifications)							
	Mouse	Options (refer to Optional Hardware Specifications)							
RAS Function		Fan stop detection, CPU temperature rise detection, Internal temperature detection, Internal voltage detection, Memory error detection, Digital input/output (DI/DO 4 points each; remote power ON/OFF 1 point, remote initialize 1 point), Watchdog timer monitoring (at system startup/during system operation), RAID disk monitoring, Software power off (shutdown), Remote initialize, Remote power on/off, Error information save on RAS memory, Operating time monitor function, Temperature information trend function, Simulation function, LED display function to indicate initialization state during unit startup, RAS status lamp function to display hardware operating status (cooling fan, battery voltage, internal temperature, RAID disk, power supply unit)							
Remote Monitoring Control (IPMI) Function		Verification of hardware monitor information (CPU temperature, internal temperature, fan speed, internal voltage), OS shutdown, power ON/OFF control, iKVM function for keyboard/mouse control, display unit RGB output screen, Virtual Media function makes it possible to reset OS to the factory settings or update software.							
Power Supply (Wide Range Power Supply) *8	Single Power Supply Configuration	Rated voltage 100 VAC to 127 VAC, 200 VAC to 240 VAC, allowable voltage 90 VAC to 140 VAC, 180 VAC to 264 VAC, allowable frequency 50 Hz/60 Hz ±3 Hz (Single power supply configuration: power supply unit × 1, Redundant power supply configuration: power supply unit × 2)							
	Redundant Power Supply Configuration								
Electric power consumption		1,188 W/1,200 VA (with 100 VAC to 127 VAC input) 1,584 W/1,600 VA (with 200 VAC to 240 VAC input)							
Dimensions and Weight		430 (W) × 86.8 (H) × 592 (D) mm (without projections) Weight: about 18 kg							
Items included in shipment package		Power cable (corresponding to the number of power supply units mounted), power cable pull-out prevention guard (corresponding to the number of power supply units mounted), rack-mounting brackets (2 in each set), instruction manual PDF (included on CD media) *9 ＊ Items other than those listed above may be included depending on the configuration of the system ordered.							
Software (OS) *10		Windows Sever® IoT 2019 Standard (Japanese version/English version) (64 bit) *11 Windows Sever® 2016 Standard (Japanese version/English version) (64 bit) *11 MIRACLE LINUX 8 Asianux Inside (64 bit)							

Optional Hardware Specifications

Expansion Main Memory		DDR4 SDRAM 8 GB/16 GB/32 GB selectable
Storage drive	Internal 3.5-inch HDD (SAS interface)	Capacity: 4 TB Configuration (HDD only: maximum 4 units; combined with SSD: maximum 3 units); (Hot swap compatible)
	Internal 2.5-inch SSD (SATA interface) *4	Capacity: 160 GB or 400 GB Configuration (SSD only: maximum 8 units; combined with HDD: maximum 2 units); (Hot swap compatible)
Keyboard		USB109 keys (Japanese OS), 104 keys (English OS)
Mouse		USB (optical)
RAS Terminal Board (UMP70)		Dl 4 points, DO 4 points, remote input 2 points
RAS Cable		Half pitch 20-pin male at both ends. Cable length 1 m or 2 m
RAS Terminal Board Mounting Panel		Simplified type
Slide Rail		2-step slide rail (2 steps in 1 set)
Slide Rail Support Bracket		Bracket (1 set) to secure the slide rail to the rack
Instruction Manual (Bound Booklet)		FS20000R model 200/100 unit instruction manual, RAS support software instruction manual, RAID controller instruction manual
Product recovery media		1 set
Auxiliary power supply (8-pin) cord		1 set

Installation Environment Conditions

Installation Environment	Temperature (Operating/While Stored)	5°C to 40°C/-10°C to 50°C
	Humidity (Operating/While Stored)	20% to 80%RH (no condensation)/ 10% to 90%RH (no condensation)
	Vibration (Operating)	3.5-inch HDD, 3.5-inch HDD / 2.5-inch SSD configuration: 2.0 m/s² or less (JIS C60068-2-6 : 9 to 150 Hz, 1 cycle) 2.5-inch SSD configuration: 4.9 m/s² or less (JIS C60068-2-6 : 9 to 150 Hz, 1 cycle)
	(While Packed)	19.6 m/s² or less
	Shock (Operating/While Packed)	19.6 m/s² or less / 245 m/s² or less
	Dust	0.3 mg/m³ or less (JEITA IT-1004B Class B compliant)
	Corrosive gas/chemicals	Not to be detected (JEITA IT-1004B Class A Equivalent)
Allowable Instantaneous Power Failure Time		10 ms or less at the rated input voltage

＊1　Operation will not be guaranteed if you combine other than the genuine memory modules for Toshiba industrial computers.

＊2　Memory of the same capacity must be installed in the specified memory banks to use the memory mirror or memory interleave function.

＊3　The memory operating speed differs depending on the type of CPU installed.

＊4　A "SMART support software" tool that can be used to predict SSD life is not pre-installed. In case of an OS pre-installed model, an installation program is stored on the internal storage. Customers can install and use the program as needed.

＊5　Use connecting units that meet the specifications below.

Terminal	Maximum Voltage	Remarks
LINE IN	1Vrms	Input impedance 10kΩ
LINE OUT	1Vrms	Load impedance 10kΩ to 600kΩ
MIC IN	0.1Vrms	Input impedance 10kΩ

＊6　USB interface does not always guarantee the operation of all the USB devices.

＊7　PCI Express slot (full size) board size (312 mm (L) ×111.15 mm (H) or less) mountable. PCI Express slot (half size) board size (167.65mm (L) ×111.15 mm (H) or less) mountable.

＊8　This model has a power supply with a built-in PFC (power factor correction) circuit. If you are using a UPS (uninterrupted power supply), select a sine wave output type.

＊9　The instruction manual (bound booklet) is optional.

＊10　Of the operating systems listed here, your specified OS will be installed. The operating system recovery image is stored on the internal storage. Recovery media can be provided for a fee. The operating system supply period is subject to change depending on the operating system distribution period of the OS supplier.

＊11　Client Access License (CAL) includes five licenses of Windows Server CAL. It does not include CAL for other specific functions.