Caution for Use
Use for industrial purposes in general.

CAUTION

- In cases where you are going to use Industrial Computers in such systems or equipment (nuclear power control system, aeronautic or space system, traffic system, other types of safety systems) that could endanger human life or bodies through failures or malfunctions, consult Toshiba in advance.
- Industrial Computers are manufactured under severe quality control. It is recommended, however, that you use safety devices in uses involving an important system or equipment.
- Be sure to read the Instruction Manual before using Industrial Computers and operate it correctly.
- Consult Toshiba in advance about environmental conditions for installation.

IMMUNITY

Toshiba will not be liable at all for any loss to your company or your client(s), caused by a failure or failures of Industrial Computers, or any loss arising therefrom, even during the warranty period for free repairs.

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- The memory capacities in the catalog are shown numerical values calculated as 1MB = 1024 x 1024 bytes and 1GB = 1024 x 1024 x 1024 bytes.
- The hard disk capacities in the catalog are shown in numerical values calculated as 1GB = 1000 x 1000 x 1000 bytes.
- Remember that the hard disks have a smaller capacity than others shown to have the same capacity calculated as 1GB = 1024 x 1024 x 1024 bytes.
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- The information contained herein as of November, 2012.

Issued in November 2012

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TOSHIBA
Leading Innovation

Product Catalogs

Industrial Computers

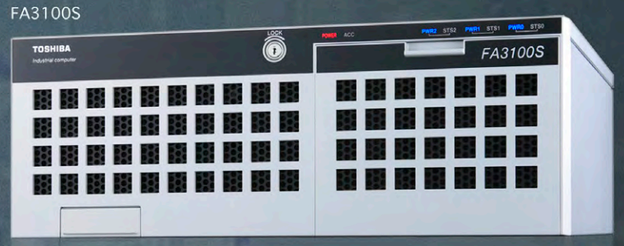
Toshiba's Industrial Computers contribute to the maintenance and development of our social infrastructure.

'Toshiba' - Quality comes as standard.

The Toshiba brand is synonymous with quality and reliability, this is true of the new Industrial Computer range. Today, industrial applications require a product that will still be here tomorrow. Look no further, Toshiba's Industrial Computers have been designed to operate for many years to come. They operate in harsh environments and provide high availability through design.

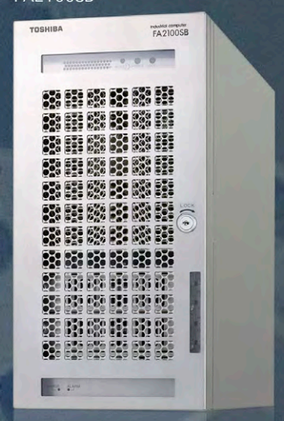
Also, Toshiba's Industrial Computers range offer a stable platform with ease of maintenance and a host of diagnostic features, making them suitable for any application area.

FA3100S

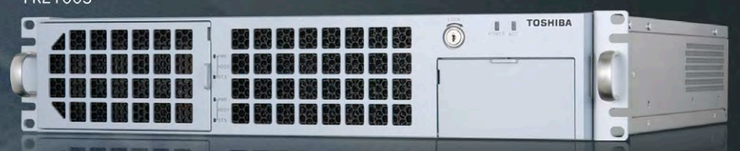


FA2100S

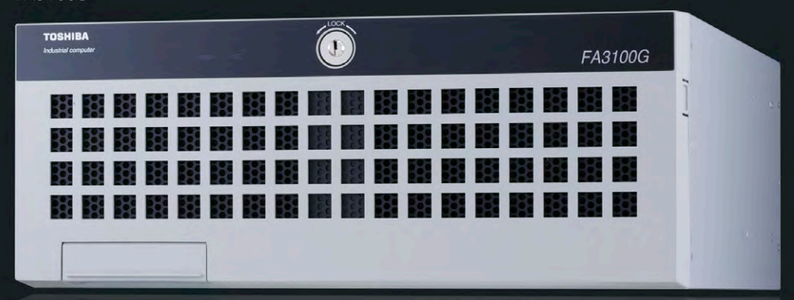
FA2100SB



FR2100S



FA3100G



Plants

Semiconductor manufacturing equipment

- Wafer dicing machine
- Wafer inspection machine
- Semiconductor cleaning machine
- Etching machine

Plants

- Steel plant control and surveillance
- Paper pulp producing line control and surveillance
- Chemical plant control and surveillance

Medical treatment

Medical equipment

- X-ray diagnostic equipment
- Blood analyzer

Airport facilities

- Aviation facilities
- Control towers
- Flight simulation

Buildings

Building surveillance systems

- Energy surveillance
- Entry exit management system
- Building disaster prevention system surveillance
- Elevator surveillance
- Multiple level parking lot control and surveillance

Retail

- POS data management server
- Store server
- Guide terminal

Transportation

Railway management

- Automatic Train Control (ATC) system, automatic train stop (ATS) system HMI
- Operation diagramming instrument
- Programmed traffic control system HMI
- Platform screen door
- Operation command room

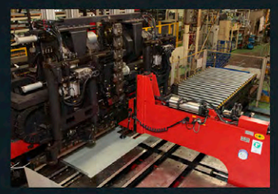
Public projects

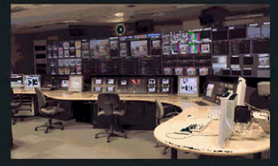
Roads

- ETC system

Water supply and sewage treatment plant system

- LCD surveillance unit
- Control and surveillance server





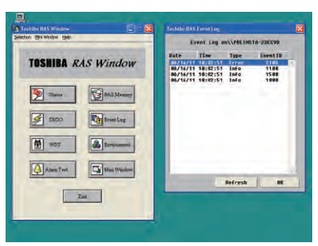
Reliability

Hardware Design Based on 24/7 Continuous Operation ►►►

The typical characteristic of “Industrial Computers” is a hardware design based to work 24/7. The computer is the heart of the system and will have a nagative impact on the system as a whole once it stops running.
To protect your system, “Industrial Computers” have a variety of functions that differ from personal computers used for general purposes.

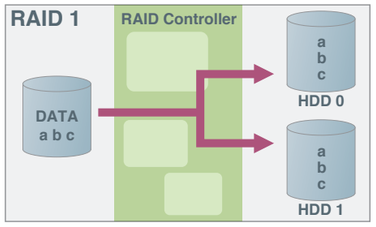
RAS Function ►►►

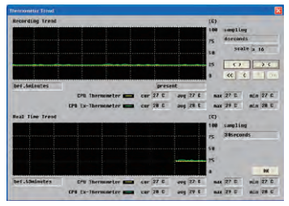
“Industrial Computers” have a self-diagnostic function called the RAS function (Reliability, Availability, Serviceability), which covers computer operation surveillance, diagnosis, error detection and notification. This helps detect computer system errors at an early stage and supports speedy solution of the problems and identifies their causes.



RAID Configuration (option) ►►►

In case one of the HDDs fails, the HDD RAID (Redundant Arrays of Independent Disks) 0 configuration permits the other HDD to continue operation. When the failed HDD is replaced with a new HDD while the computer is in operation, its data will be automatically copied from the failed HDD to restore the mirroring configuration. This HDD redundancy protects your data.





Easy Maintenance

Front-end Maintenance ►►►

Components such as HDDs, fans, CMOS-batteries, and filters can be replaced in front. This means that any of these components in your system can be easily and quickly replaced without trouble and cost of calling a serviceman.

Robustness (Low failure rate)

HDD Screening Inspection ►►►

The HDDs are put to a screening inspection before shipment.
HDDs found defective, or predicted to fail later in the field, upon inspection, any are excluded from shipment. Thus, you can be sure of the high reliability of HDDs.

Strict Shipment Tests ►►►

All the products made to the specifications and configurations of your order are put to aging and shipment tests to make sure they meet the quality requirements for shipment.

Sophisticated Parts and Design ►►►

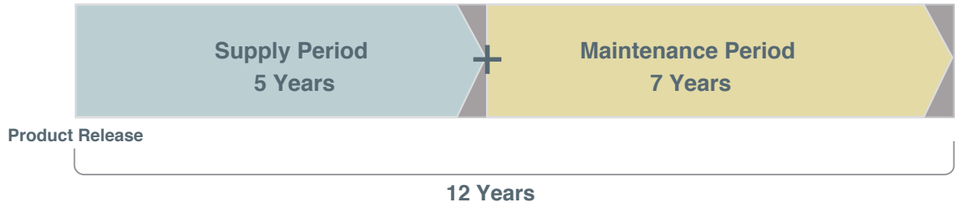
“Industrial Computers” employ highly durable and reliable parts made to a rigorous standard of quality and design.
The Separate 3-lane Structure, which takes in air to Expansion card area, CPU area and Disk drive area, achive the most effective cooling structure.

Long-Term Supply and Maintenance

Advantages of Using the Same Computer over a Long Time ►►►

The product supply period is set at five years from the day of product release* and the product maintenance period at seven years after the supply period, assuming that you will use the “Industrial Computers” over a long period of time.
(The supply period and maintenance period for model FA3100G, however, are set at three years, respectively). This will help you reduce troubles and cost of repeatedly updating your system version and verifying the operation of your applications.

*The release date of each product is indicated to page 6.



Product Specifications of Industrial Computers

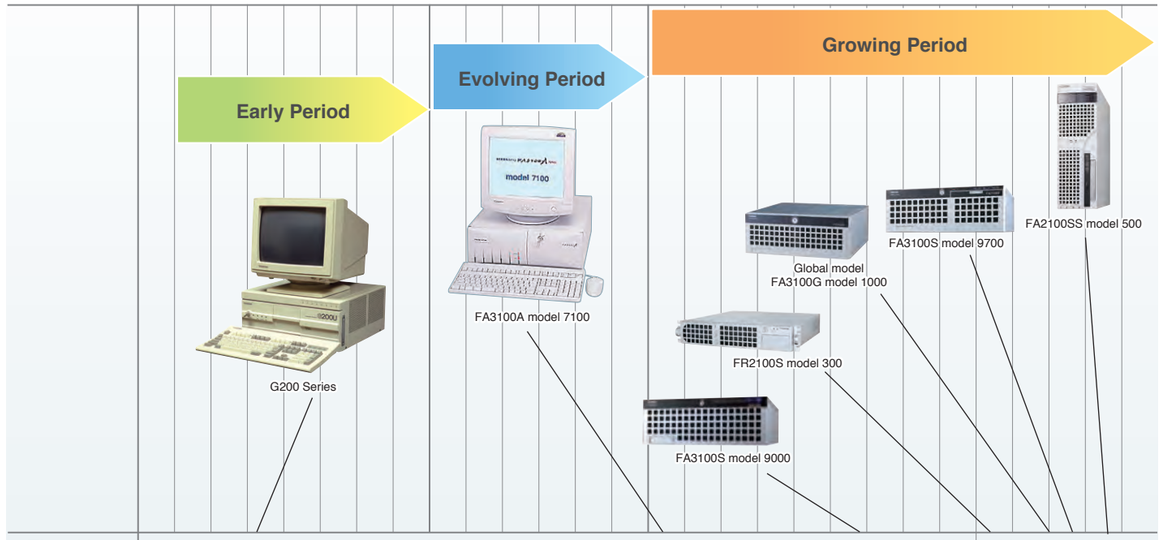
Product	Desktop Type			Slim Type		Built-in UPS Type	Rack-mount Type (2U size)
External view							
Model	FA3100G model 1000	FA3100S model 9700	FA3100S model 9500/5500	FA2100SS model 500	FA2100S model 300/200	FA2100SB model 300/200	FR2100S model 300/200
Processor	Pentium Dual-Core 2.93GHz(E6500)	Xeon Quad Core 2.13 GHz (L5518)	model 9500 Core 2 Duo 2.13 GHz model 5500 Pentium Dual-Core 1.8 GHz	Core i7 Quad Core 2.3 GHz (3615QE)	model 300 Core 2 Duo 2.13 GHz model 200 Pentium Dual-Core 1.8 GHz	model 300 Core 2 Duo 2.13 GHz model 200 Pentium Dual-Core 1.8 GHz	model 300 Core 2 Duo 2.13 GHz model 200 Pentium Dual-Core 1.8 GHz
Chipset	Intel Q35	Intel 5520	Intel 3010	Mobile Intel HM76 Express Chipset	Intel 3010	Intel 3010	Intel 3010
Maximum Memory Capacity	4GB	6GB	4GB	8GB	4GB	4GB	4GB
Dimensions (mm)	444W x 176H x 465D	430W x 170H x 460D		100W x 310H x 340D		155W x 310H x 360D	431W x 87H x 470D
Weight (kg)	Approx. 15	Approx. 17		Approx. 10		Approx. 15.4	Approx. 15.0
RAID (option)	1	1/5		1		1	1
Expansion Slot: Total	6	7		3	3	5	5
Expansion Slot: PCI	Full (3), Half (1)	Full (3)	Full (5)	Half (2)	Half (2)	Half (3)	Full (1), Half (2)
Expansion Slot: PCI-Express	Full (2)	Full (3), Half (1)	Full (2)	Half (1)	Half (1)	Half (2)	Full (1), Half (1)
Operating System: Windows® XP (Pro)	-	●	●	●*3	●	●	●
Operating System: Windows Vista® Business	-	-	●	-	●	-	●
Operating System: Windows® 7 (Pro)	●	●	●	●*2	●	●	●
Period of Supply / Maintenance: Release	2010/12	2011/7	model 9500: 2008/11 model 5500: 2009/3	2012/5	model 300: 2008/7 model 200: 2008/10	2009/12	2009/3
Period of Supply / Maintenance: Supply Period (End of Supply)	3 years (2013/12)	5 years (2016/7)	5 years (model 9500: 2013/11) (model 5500: 2014/3)	5 years (2017/5)	5 years (model 300: 2013/7) (model 200: 2013/10)	5 years (2014/12)	5 years (2014/3)
Period of Supply / Maintenance: Maintenance Period*1 (End of Maintenance)	3years (2016/12)	7 years (2023/7)	7 years (model 9500: 2020/11) (model 5500: 2021/3)	7 years (2024/5)	7 years (model 300: 2020/7) (model 200: 2020/10)	7 years (2021/12)	7 years (2021/3)

*1 Maintenance period is shown in years after termination of product sale in the corresponding tables.

*2 English edition is available for both Windows® 7 (Pro)(32bit) and Windows® 7 (Pro)(64bit).

*3 Windows® XP (Pro) for Embedded System has to be delivered to end-users by 2016/12. It is available through Toshiba until 2016/9.

History of Industrial Computers



Time Line	1987 1989	1994	2000 2005 2008	2010 2012
Main Line of Products	• G300 with Real-time UNIX (1987/1 ～ 2000/2) • G200 Series (1989/4 ～ 2001/4)	• FA3100 Series with Windows OS (1994 ～)	• Slim type FA2100 (2001/3 ～ 2012/5) • Rack Mount Type FR2100 (2002/5 ～ 2016/3) • FA3100S Series with built-in Dual-Core Processors (2005/10 ～ 2017/10)	• FA3100G model 1000 (2010/12 ～ 2016/12) • FA3100S model 9700 (2011/7 ～ 2023/7) • FA2100SS model 500 (2012/5 ～ 2024/5)
Features	Built resistant to severe environment conditions to permit unattended operation and 24/7 operation Reinforced RAS function			
	• Real-time control and multi-task environment thanks to 32-bit processors and real-time UNIX	• Widened range of expansion and connections to other devices offered by personal computer technologies [e.g.] Introduction of Intel Pentium processors, Windows NT and other operating systems	• Widened range of expansion and connections to other devices [e.g.] Introduction of Quad-Core Processors (2010) • Easier maintenance by front loading • Supply and maintenance over a long period of time (Max 12 years)	

FA3100G
model 1000

Easy-to-Use, Highly Reliable, Good Performance: Toshiba Tradition

This is the first of the FA3100 series designed by Toshiba and made in China.*
However, the traditional characteristics of Industrial Computers remain Toshiba quality easy-to-use, highly reliable, good performance.

* Product release: December 2010

High Speed and High Performance

Dual-Core Processor Built-in
High-performance CPU Intel Pentium Dual-Core processor E6500 (2.93 GHz) is built in for high-speed processing.

High-Speed, High-Performance Chipset and Windows® 7
The Intel chipset of Q35GMCH + Intel ICH9DO is employed for high-speed data transfer. Compatibility with Windows® 7 satisfies a broad range of customer needs.

Stable Operation Design and Support

Technology and Quality that Support 24-Hour Continuous Operation
Highly reliable, long-life parts are used, based on assumption of 24-hour continuous operation. The hardware is designed with derating taken into account. Toshiba has been focusing to achieve high quality by performing pre-shipment function tests and temperature tests conducted to determine that the product specifications (in the temperature range of 5 to 40°C) will be fully satisfied.

Stability of Operation over a Long Time
To ensure stability of operation, the hard disks with a high failure rate are put to screening tests before shipment and long-life aluminum electrolytic capacitors made in Japan use. The motherboard is impedance-adjusted for stability of signal transmission. The product is designed to prevent noise and static from external devices, thus assuring trouble-free operation for the customer.

RAID Available (Type R)
The hot swap function permits replacement of failed hard disks without computer shutdown. If an error occurs, it is indicated by the corresponding LED.

Self-Diagnostic RAS Function
The advanced RAS function monitors computer operation, and detects and notifies errors. It ensures high reliability by supporting stability of operation around the clock.

Product Supply over a Long Time

The Product will be Available for a Long Period of Time.
The product will be supplied for three (3) years after product release, and maintenance service will be available for three (3) years after the suspension of its production. This will facilitate software re-authentication at a time of computer replacement and shorten the time required for redevelopment. Long use of the product will help reduce industrial waste.

Good Maintainability

The Hard Disks can be Replaced in Front.
The hard disks, parts with a limited service life, can be easily replaced in front of the main unit.

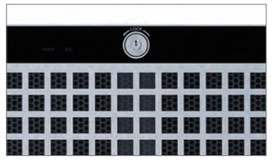
Reinforced Security

The main unit has a security key lock, as a standard component, on the front to prevent illegal accesses.

Example of Replacement

Hard Disk Front Replacement(Type R)

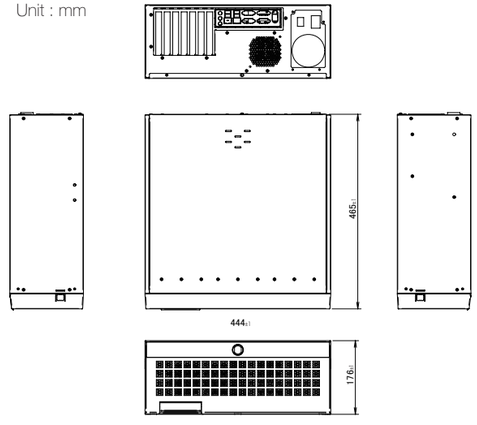
Security



Security Key Lock

Dimensions

Unit : mm



Specifications

FA3100G model 1000		Type E	Type D	Type P	Type R
Processor	Main Processor	Intel Pentium Dual-Core processor E6500 (2.93GHz)			
	Level 2 Cache	2MB (CPU built-in)			
Chipset		Intel Q35GMCH + Intel ICH9DO			
Main Memory*1	Memory	DDR2 SDRAM (DDR2-800)			
	Capacity	1GB (512MB x 2)		2GB (1GB x 2)	4GB (2GB x 2)*2
Auxiliary Storage	Built-in HDD	250GB SATA 7200rpm x 1		250GB SATA 7200rpm x 1	250GB SATA 7200rpm x 3
	Built-in DVD Super Multi-Drive	None	Super multi-drive		
RAID Compatible		None			RAID1+HS
Display Control	Graphic Controller	Onboard (with Q35GMCH)			
	Graphic Display	Analog RGB			
Interface	Serial Interface	RS232C (D-sub 9-pin) x 3ch (rear)			
	Keyboard Interface	PS/2 x 1ch (rear)			
	Mouse Interface	PS/2 x 1ch (rear)			
	USB Interface*3/*4	USB x 2ch (front), USB x 4ch (rear) (USB 2.0)			
	Audio Interface*4/*5	LINE IN/LINE OUT/MIC IN (3.5φ stereo mini-jack) (rear)			
	Ethernet Interface*4	10 BASE-T/100 BASE-TX/1000 BASE-T (automatic switching, RJ45) x 2ch (rear)			
	Display Interface	D-sub 15-pin x 1ch (rear)			
Expansion Interface (No. of Slots)	PCI	PCI slot (32 bits/33 MHz) (full size) x 3 (half size) x 1*6*7 PCI 2.3			
	PCI Express x4	PCI Express slot (full size) x 1 *8 PCI Express 1.1			RAID disk model: 1 slot exclusive to RAID board
	PCI Express x16	PCI Express slot (full size) x 1 *8 PCI Express 1.1			
Software	OS (Operating System)*9*10	None		Windows® 7 Ultimate (Multi-Language) Windows® XP Professional (Multi-Language)*11	
	RAS Function	Fan stop detection CPU temperature rise detection Internal voltage detection Watchdog timer			
Power Supply (Wide Range Power Supply)*12		Rated voltage: 115 VAC (60 Hz)/220 VAC (50 Hz), fluctuation range: 100 to 264 VAC, rated input frequency: 50 Hz/60 Hz			
Electric Power Consumption		Max. 306 W/313 VA (without display)			
Dimensions and Weight		444 (W) ×176 (H)*13×465 (D) mm (without projections) Weight: about 15 kg			

*1 A dual channel memory configuration requires installation of storage devices of the same capacity.
Operation will not be guaranteed if you pair other than genuine storage devices for Toshiba industrial computers.
*2 If a 4 GB memory is installed, the available memory value will be about 3 GB in order to reserve the memory address area for PCI device, etc.
*3 USB interface does not always guarantee the operation of all the USB peripherals.
*4 Enable/disable can be set using the main unit's BIOS.
*5 Use connecting units that meet the specifications at right.
*6 PCI slot board (size 312 mm long x 107 mm high maximum) can be built in.
*7 Installable PCI boards are 5V key boards and 5V/3.3V shared key boards. (Boards of 3.3V keys only cannot be installed.)
*8 PCI Express slot board (size 312 mm long x 111 mm high maximum) can be built in.
*9 OS supply period is subject to change depending on the OS distribution period of the OS supplier.
*10 The product itself and OS recovery media are compatible with OA (OEM Activation) so that there is no need for Windows license authentication after OS recovery or hardware reconfiguration.
*11 Pre-installed models (Types P, R) have support for their pre-installed OS.
*12 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.
*13 Rubber feet not included

Specifications of the Accessories to FA3100G

Spare Filter, Front Air Filter	1 set (4 filters)
Rack Mounting Parts	1 set (2 pieces)
Rubber Foot	4 pieces

Installation Environment Conditions

Installation Environment	Temperature (Operating)	5 to 40°C*1
	Humidity (Operating)	30 to 80% RH (no condensation)
	Vibration (Operating)*2	2.45m or less/s^2
	(Non-Operating)	4.90 m or less/s^2
	Shock (Non-Operating)	392 m or less/s^2 (shock time:11msec, waveform:half sine wave)
	Corrosive Gas (Operating)	No corrosive gases to be detected
Allowable Instantaneous Interruption Time		No malfunction within 17 ms (at rated input of 220 V, instantaneous interruption intervals of 10 s or more)

*1 At ambient temperature in homogeneous space and temperature gradient of 10°C/h maximum.
*2 Except during the operation of an auxiliary memory other than HDD.

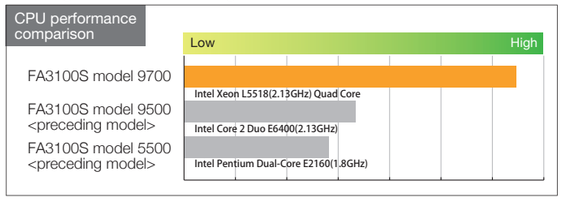
FA3100S
model 9700

Fusion of High Reliability and Performance

Technology Creating Higher Performance

Xeon processor (Quad Core) built in

High-performance CPU Intel Xeon L5518 (2.13 GHz) is built in for high-speed processing.



* The above comparison is based on Toshiba data, and may differ from the above depending on your system.

High-Speed, High-Performance Chipset and Memory Employed

An Intel 5520 chipset and a high-speed memory with ECC function (6 GB maximum)*1 are employed to offer high-speed data transfer.

*1 If a main memory of 4 GB or more is installed with a 32-bit OS already installed in your system, the available memory capacity will be about 3 GB

Gigabit Ethernet Interface (3-channel) Included

A gigabit-compatible, 3-channel Ethernet interface is a standard feature.

High-Performance Graphic Board Included

A high-performance graphic board (maximum resolution 2560 x 1600) is built in to provide dual display of the multi-monitor function, clone monitor function, etc.

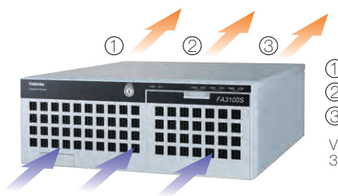
High Reliability and Support for Stability of Operation

Technology and Quality that Support 24-Hour

Highly reliable, long-life parts are used, based on assumption of 24-hour continuous operation. The individual parts are tested, and the products in the shipment configuration are put to function and temperature tests to determine that they fully satisfy the specifications (in the temperature range of 5 to 40°C) and the high quality requirements.

Visual representation of the 3-lane separate structure

There are two intake fans in the front and one exhaust fan in the rear. Without using CPU cooler fans, the CPU is cooled by direct exposure of the heat sink to the air drawn in by the intake fans. The cooling performance is improved by separating the main heat flows of the major internal parts of the product.



① Expansion Card Area
② CPU Area
③ Disk Drive Area

Visual representation of the 3-lane separate structure

LED Display Module

The LED module provides such functions as displaying initialization status on the LED display panel and indicating hardware operating conditions (cooling fans, lithium battery voltage, and internal temperature) with the RAS status lamps. You may find the module useful for early identification and separation of failures monitored on the LED display with your application programs.

Good Maintainability and Protection Structure

High Maintainability by Front Access

The hard disks, cooling fans, and lithium battery can be easily replaced in front of the product.

Front of the Product (Inside the front panel)

Security

Security Key Lock*2

Example of Replacement

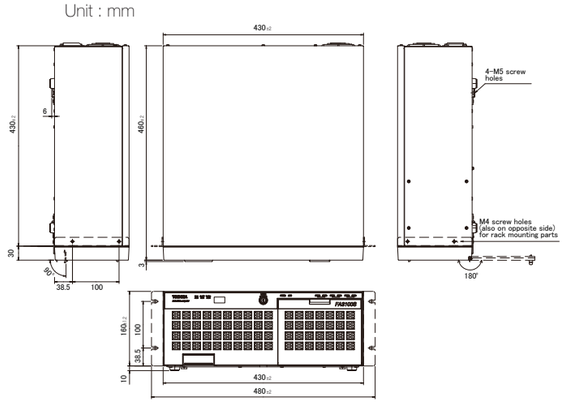
Front-end Replacement of Hard Disk

Front-end Replacement of Cooling Fan and Lithium Battery

*2 The security lock key enables you to prevent illegal accesses by fixing the drive bay covers with their special internal screws and using the special parts inside the USB cover.

Dimensions

Unit : mm



Specifications

FA3100S		model 9700	
		Single Disk Model	RAID Disk Model
Processor	Main Processor	Intel Xeon L5518 (2.13GHz) Quad Core	
	Level 2 Cache	256KB×4 (256KB/Core) (CPU built in)	
	Level 3 Cache	8 MB (CPU built in)	
Chipset		Intel 5520	
Main Memory*1*2	Capacity	Min.1GB (1GB×1), Max 6GB (2GB×3)	
Auxiliary Storage	Built-in HDD	Capacity: Two 160GB units mountable	Capacity: Three 160GB units mountable
	Built-in DVD-ROM	Options (Refer to the table of Optional Hardware Specifications)	
	Built-in DVD Super Multi-Drive		
RAID Compatible		–	RAID 1/5
Interface	Serial Interface*4	RS-232C (9-pin D-SUB) x 2ch (rear)	
	USB Interface*3*4	USBx2ch (front), USBx4ch (rear) (Type A USB 2.0)	
	Audio Interface*4*5	LINE IN/LINE OUT/MIC IN (3.5φ mini jack) (rear)	
	Ethernet Interface	10 BASE-T/100 BASE-TX/1000 BASE-T (automatic switching) (RJ45) x 3ch (rear) Wake on LAN (main unit port only compatible)	
	Display Interface	Options (Refer to the table of Optional Hardware Specifications)	
	DI/DO Interface	DI 4 points, DO 4 points, remote input 1 point (rear)	
Expansion Interface (No. of Slots)	PCI Express slot*6*7	4 slots (PCI Express 2.0)	
	PCI Express (x 16)	Full size ×1 slot (exclusive to graphic board)	
	PCI Express (x 8)	Full size ×2 slots	
	PCI Express (x 4)	Half size ×1 slot (exclusive to RAID board for RAID Disk Model)	
	PCI slot*8*9	Full size ×3 slots (PCI 2.3)	
Input Device	Keyboard	USB 104 keys (Japanese version USB 109 keys selectable)	
	Mouse	USB (optical)	
Software	OS (Operating System)*11*12*13	Windows® XP Professional Service Pack 3 (English version) (32 bits) Windows® 7 Professional (English version) (32 bits) Windows® 7 Professional (English version) (64 bits)	
	RAS Function	Fan stop detection, CPU temperature rise detection Internal temperature detection, Internal voltage detection Memory error detection, PCI bus error detection Digital input/output (DI/DO 4 points each; remote ON/OFF or remote initialize 1 point) Watchdog timer, hard disk monitor (RAID only) 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 in initialized state after main unit startup, RAS status lamp function for indicating hardware operating condition (cooling fans, lithium battery voltage, internal temperature, RAID disk)	
Power Supply (Wide Range Power Supply)*18		Rated voltage 100 VAC/240 VAC, allowable voltage 85 to 264 VAC, allowable frequency 50 Hz/60 Hz±3Hz	
Electric Power Consumption		Max. 508 W/513 VA	
Dimensions and Weight		430 (W) x 170 (H)*10 x 460 (D) mm (without projections) Weight: about 17 kg	

Optional Hardware Specifications

Expansion Main Memory*1*2	DDR3 SDRAM (DDR3-1066/PC3-8500) 1GB/2GB selectable,with ECC check
Built-in HDD (SATA Interface)*14	Single disk model capacity: 160 GB 2 units mountable
	RAID disk model capacity: 160 GB 3 units mountable (hot swap compatible RAID disk)
Built-in DVD-ROM*15 (SATA Interface)	DVD-ROM speed 8x max. (read) / DVD-ROM speed 24x max. (read) / DVD-R speed 8x max. (read) DVD+R speed 8x max. (read)) / DVD-RW speed 8x max. (read) / DVD+RW speed 8x max. (read) DVD-RAM speed 5x max. (read) / CD-R speed 24x max. (read) / CD-RW speed 24x max. (read)
Built-in DVD super multi-drive*15 (SATA Interface)	DVD-ROM speed 8x max. (read) / DVD-ROM speed 24x max. (read) DVD-R speed 8x max. (write)/speed 8x max. (read) / DVD+R speed 8x max. (write)/speed 8x max. (read) DVD-RW speed 6x max. (write)/speed 8x max. (read) / DVD+RW speed 4x max. (write)/speed 8x max. (read) DVD-RAM speed 5x max. (write)/speed 5x max. (read) / CD-R speed 24x max. (write)/speed 24x max. (read) CD-R speed 24x max. (write)/speed 24x max. (read)
Display Interface*16	Graphic board (DVI-Ix2ch) (rear) (PCI Express) (One DVI-RGB conversion connector provided as an accessory)
RAS Terminal Board	DI 4 points, DO 4 points, remote input 1 point
RAS Cable	Half pitch 20-pin male at both ends, 2 m max.
RAS Terminal Board Mounting Panel	Simplified type
Rack Mounting Parts	For JIS type 19 rack/for EIA type 19 rack

Installation Environment Conditions

Installation Environment	Temperature (Operating/Storage)	5 to 40°C (Temperature near vent) /-10 to 50°C
	Humidity (Operating/Storage)	20 to 80% RH (no condensation) /10 to 90% RH (no condensation)
	Vibration (Operating)*17	1.96m or less/s^2 (EIA C60068-2-6:9 to 150Hz 1cycle)
	(As Packed)	19.6m or less/s^2
	Shock (Operating/As Packed)	19.6m or less/s^2/245m or less/s^2
	Dust (Operating/Storage)	0.3 mg/m^3 or less (JEITA-IT-1004A Class B compliant)
	Corrosive Gas (Operating/Storage)	Not to be detected
Allowable Instantaneous Interruption Time		20 ms or less (operating at rated voltage)

*1 Operation will not be guaranteed if you pair other than genuine storage devices for Toshiba industrial computers.
*2 If a main memory of 4 GB or more is installed with a 32-bit OS already installed in your system, the available memory capacity will be about 3 GB in order to reserve the memory address area for PCI device, etc
*3 USB interface does not always guarantee the operation of all the USB peripherals.
*4 Enable/disable can be set using the main unit's BIOS.
*5 Use mounting 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 PCI Express slot board size (312 mm (L) x 111.15 mm (H) or less) (full size) mountable
*7 PCI Express slot (167.65 mm (L) x 111.15 mm (H) or less) (half size) mountable
*8 PCI slot board size (312 mm (L) x 106.68 mm (H) or less) mountable
*9 Installable PCI boards are 5V key boards and 5V/3.3V shared key boards.(Boards of 3.3V keys only cannot be installed.)
*10 Shown with 10-mm rubber feet on
*11 Of the Operating Systems listed here, your specified OS will be installed.
*12 OS supply period is subject to change depending on the OS distribution period of the OS supplier.
*13 Pre-installed Windows is licensed.
*14 Shipment model and drive bay combinations are below
*15 Pre-shipment option

Shipment Model		Drive Bay 2	Drive Bay 1	Drive Bay 0
Single Disk Model			HDD (option selectable)	HDD
RAID Disk Model	RAID1(Mirror)	Hot spare HDD (option selectable)	HDD	HDD
	RAID5	HDD	HDD	HDD

*16 The graphic card specifications apply only to cases where Windows® 7 (64-bit version) is installed.
*17 Except during operation of auxiliary storage other than HDD
*18 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.

FA3100S
model 9500/5500

Easy to Use, Highly Reliable, Good Performance

Advanced Technology to Deliver Higher Performance

Dual-Core Processor Built in
High-performance CPU Intel Core 2 Duo processor E6400 (2.13 GHz/FSB1066 MHz) is built in for high-speed processing.

High-Speed, High-Performance Chipset and Memory Employed
An Intel 3010 chipset and a high-speed memory with the ECC function are applied for high-speed data transfer.
A 2-channel gigabit Ethernet is provided as a standard interface.

Gigabit Ethernet I/F in Standard Specification (2ch)
Two channels of Gigabit Ethernet I/F (10BASE-T/100BASE-T/1000BASE-T for automatic switching) are provided in the standard specification. (Wake on LAN function compatible)

High-Performance Graphic Board Compatible with Windows® 7 Built in
A high-performance graphic board (with a maximum resolution of 2560 x 1600) compatible with Windows® 7 is built in. Dual display of the multi-monitor function and clone monitor function is available.

High Reliability for Supporting 24/7 Continuous Operation

Technology and Quality that Support 24-Hour Continuous Operation
Highly reliable, long-life parts are used, based on assumption of 24-hour continuous operation. The individual parts are tested, and the products in the shipment configuration are put to function and temperature tests to determine that they fully satisfy the specifications (in the temperature range of 5 to 40 °C) and the high quality requirements.

Improved Cooling Performance (Separate 3-lane Structure)
There are two intake fans in the front and one exhaust fan in the rear. Without using CPU cooler fans, the CPU is cooled by direct exposure of the heat sink to the air drawn in by the intake fans. The cooling performance is improved by separating the main heat flows of the major internal parts of the product.

① Expansion Card Area
② CPU Area
③ Disk Drive Area

Visual representation of the 3-lane separate structure

ECC Memory Employed
A highly reliable ECC memory capable of detecting and correcting memory errors is installed.

Good Maintainability and Protective Structure

Easy Maintenance by Front Access
The hard disks, cooling fans, and lithium battery can be easily replaced in front of the main unit.

Example of Replacement


Front-end Replacement of Hard Disk


Front-end Replacement of Cooling Fan and Lithium Battery

Security


Security Key Lock

Operation Error Prevention


AC Cable Clamp

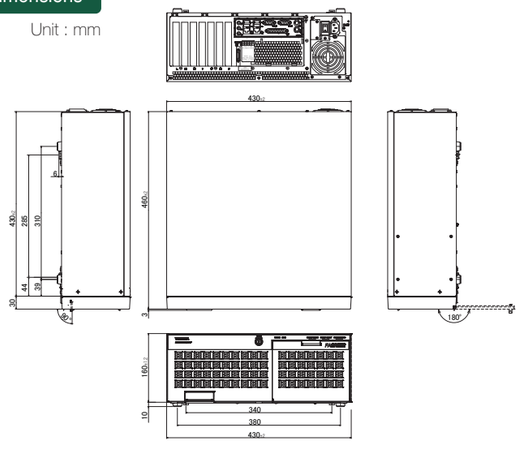
Types of Installation

Vertical ▶

Horizontal ▼

Dimensions

Unit : mm



Specifications

FA3100S		model 9500		model 5500	
		Single Disk Model	RAID Disk Model	Single Disk Model	RAID Disk Model
Processor	Main Processor	Intel Core 2 Duo processor E6400 (2.13 GHz)		Intel Pentium Dual-Core processor E2160 (1.8 GHz)	
	Level 2 Cache	2 MB (CPU built in)		1 MB (CPU built in)	
Chipset		Intel 3010			
Main Memory*1	Memory	DDR2 SDRAM (DDR2-667/PC2-5300) with ECC check, DIMM 4 sockets			
	Capacity	Min. 512 MB (512 MB×1), Max. 4GB*2 (2 GB×2)			
Auxiliary Storage	Built-in HDD	Capacity: Three 160GB units mountable	Capacity: Three 160GB/500GB units mountable	Capacity: Three 160GB units mountable	Capacity: Three 160GB/500GB units mountable
	Built-in DVD-ROM	Options (Refer to the table of Optional Hardware Specifications)			
	Built-in DVD Super Multi-Drive				
RAID Compatible		—	RAID 1/5	—	RAID 1/5
Interface	Serial Interface	RS-232C (9-pin D-SUB) x 2ch (rear)			
	Parallel Interface	For printer (25-pin D-SUB) x 1ch (rear)			
	Keyboard Interface	PS/2 x 1ch (rear) or USB			
	Mouse Interface	PS/2 x 1ch (rear) or USB			
	USB Interface*3/*4	USBx2ch (front), USBx4ch (rear) (Type A USB 2.0/1.1)			
	Audio Interface*4/*5	LINE IN/LINE OUT/MIC IN (3.5φ stereo mini jack) (rear)			
	Ethernet Interface*4	10 BASE-T/100 BASE-TX/1000 BASE-T (automatic switching) (RJ45) x 2ch (rear) Wake on LAN (main unit port only compatible)			
	Display Interface	Options (Refer to the table of Optional Hardware Specifications)			
	DI/DO Interface	Digital input/output (20 half-pitch pins) DI 4 points, DO 4 points, remote ON/OFF or remote initialize 1 point, no power supply*6		Options (Refer to the table of Optional Hardware Specifications)*7	
Expansion Interface (No. of Slots)		PCI slot (32 bits/33 MHz) (full size x 5)*8*9 PCI2.3		PCI slot (32 bits/33 MHz) (full size x 5)*10 PCI2.3	
		PCI Express slot (full size x2)*11 PCI Express 1.0a RAID disk model: 1 slot exclusive to RAID board		PCI Express slot (full size x2)*11 PCI Express 1.0a RAID disk model: 1 slot exclusive to RAID board	
Input Device	Keyboard*12	USB 104 keys (Japanese version USB 109 keys selectable)			
	Mouse*12	USB			
Software	OS (Operating System)*13/*14/*15	Windows® XP Professional (English edition/multi-language edition*16) Windows Vista® Business (English edition) Windows® 7 Professional (English edition)*17		Windows® XP Professional (English edition/multi-language edition) Windows Vista® Business (English edition) Windows® 7 Professional (English edition)*18	
	RAS Function *Option for model 5500	Fan stop detection, CPU temperature rise detection Internal temperature detection, Internal voltage detection Memory error detection, PCI bus error detection Digital input/output (DI/DO 4 points each; remote ON/OFF or remote initialize 1 point) Watchdog timer, hard disk monitor (RAID only) 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			
Power Supply (Wide Range Power Supply)*19		Rated voltage 100 VAC/240 VAC, allowable voltage 85 to 264 VAC, allowable frequency 50 Hz/60 Hz±3Hz			
Electric Power Consumption		Max. 508 W/513 VA (without display)			
Dimensions and Weight		430 (W) x 170 (H)*20 x 460 (D) mm (without projections) Weight: about 17 kg			
Accessories	Instruction Manual	1			
	AC Power Cable	1			

Optional Hardware Specifications

	model 9500	model 5500
Expansion Main Memory*1	DDR2 SDRAM (DDR2-667/PC2-5300) 512MB/1GB/2GB selectable,with ECC check	
Built-in HDD (SATA Interface)*21	Single disk model capacity: 160 GB 3 units mountable	
	RAID disk model capacity: 160 GB/500 GB 3 units mountable (hot swap compatible RAID disk)	
Built-in DVD-ROM*22 (SATA Interface)	DVD-ROM speed 8x max. (read) / DVD-ROM speed 24x max. (read) / DVD-R speed 8x max. (read) DVD+R speed 8x max. (read)) / DVD-RW speed 8x max. (read) / DVD+RW speed 8x max. (read) DVD-RAM speed 5x max. (read) / CD-R speed 24x max. (read) / CD-RW speed 24x max. (read)	
Built-in DVD super multi-drive*22 (SATA Interface)	DVD-ROM speed 8x max. (read) / DVD-ROM speed 24x max. (read) DVD-R speed 8x max. (write)/speed 8x max. (read) / DVD+R speed 8x max. (write)/speed 8x max. (read) DVD-RW speed 6x max. (write)/speed 8x max. (read) / DVD+RW speed 4x max. (write)/speed 8x max. (read) DVD-RAM speed 5x max. (write)/speed 5x max. (read) / CD-R speed 24x max. (write)/speed 24x max. (read) CD-R speed 24x max. (write)/speed 24x max. (read)	
Expansion Ethernet Interface	10 BASE-T/100 BASE-TX/1000 BASE-T (automatic switching) (RJ45) x 1ch (rear) (PCI bus)	
Display Interface	LED function to display initialized state of main unit started; RAS status lamp function to display hardware operating status (cooling fan, lithium battery voltage, internal temperature)	
LED Display Module*22	LED function to display initialized state of main unit started; RAS status lamp function to display hardware operating status (cooling fan, lithium battery voltage, internal temperature)	-
DI/DO Interface (With Power Supply)	Digital input/output (half-pitch 36-pin) DI 4 points, DO 4 points, remote ON/OFF or remote initialize 1 point*6/*23	Digital input/output (half-pitch 36-pin) DI 4 points, DO 4 points, remote ON/OFF or remote initialize 1 point*7/*23
DI/DO Interface (Without Power Supply)	Standard function	Digital input/output (half-pitch 20-pin) DI 4 points, DO 4 points, remote ON/OFF or remote initialize 1 point*7
RAS Terminal Board (For No Power Supply)*24	DI 4 points, DO 4 points, remote input 1 point	
RAS Cable (For No Power Supply)*24	Half pitch 20-pin male at both ends, 2 m max.	
RAS Terminal Board Mounting Panel	Simplified type	
Rack Mounting Parts	For JIS type 19 rack/for EIA type 19 rack	

Installation Environment Conditions

Installation Environment	Temperature (Operating/Storage)	5 to 40°C /-10 to 50°C
	Humidity (Operating/Storage)	20 to 80% RH(no condensation)/10 to 90% RH(no condensation)
	Vibration (Operating)*25	1.96m or less/s² (EIA C60068-2-6:9 to 150Hz 1cycle)
	(As Packed)	19.6m or less/s²
	Shock (Operating/As Packed)	19.6m or less/s²/245m or less/s²
	Corrosive Gas (Operating/Storage)	Not to be detected
Allowable Instantaneous Interruption Time		20 ms or less (operating at rated voltage)

*1 A dual channel memory configuration requires installation of storage devices of the same capacity. Operation will not be guaranteed if you pair other than genuine storage devices for Toshiba industrial computers.
*2 If a 4 GB memory is installed, the available memory value will be about 3 GB in order to reserve the memory address area for PCI device, etc.
*3 USB interface does not always guarantee the operation of all the USB peripherals.
*4 Enable/disable can be set using the main unit's BIOS.
*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 DI/DO interface without power supply is a standard component, and DI/DO interface with power supply is an option. Either of them may be selected. (Pre-shipment option)
*7 DI/DO interface is not included in the (optional) expansion RAS board. Select one as necessary. DI/DO interface "without power supply" or "with power supply" can be optionally selected. (Option before shipment)
*8 PCI slot board size (312 mm (L) x 107 mm (H) or less) mountable
*9 Installable PCI boards are 5V key boards and 5V/3.3V shared key boards. (Boards of 3.3V keys only cannot be installed.)
*10 PCI slot board size (312 mm (L) x 106.68 mm (H) or less) mountable
*11 PCI Express slot board size (312 mm (L) x 111.15 mm (H) or less) mountable
*12 Either USB type or PS/2 type can be selected in your order. USB type is taken as selected if neither is specified.
*13 Of the Operating Systems listed here, your specified OS will be installed.
*14 OS supply period is subject to change depending on the OS distribution period of the OS supplier.
*15 The main unit and OS recovery media are compatible with OA (OEM Activation), so OS recovery or hardware configuration change does not require Windows license authentication.
*16 To be released separately
*17 Windows® 7 requires a minimum memory capacity of 1 GB. Windows® XP mode is outside the scope of our support.
*18 Optional RAS board is necessary for Windows® 7. The required memory capacity is 1 GB minimum. Windows® XP mode is outside the scope of our support.
*19 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.
*20 Shown with 10-mm rubber feet on
*21 Shipment model and drive bay combinations are below

Shipment Model		Drive Bay 2	Drive Bay 1	Drive Bay 0
Single Disk Model		HDD (option selectable)	HDD (option selectable)	HDD
RAID Disk Model	RAID1 Model (Mirror)	Hot spare HDD (option selectable)	HDD	HDD
	RAID5	HDD	HDD	HDD

*22 Pre-shipment option
*23 Option (with power supply) supplies 5 VDC to DI and remote inputs. If you are using DO, it is necessary for you to have an external power supply ready.
*24 RAS terminal board and RAS cable are exclusive to DI/DO interface (without power supply). When using DI/DO interface with power supply, users are in charge of prepareing RAS terminal board and RAS cable by their own.
*25 Except during operation of auxiliary storage other than HDD

FA2100SS
model 500

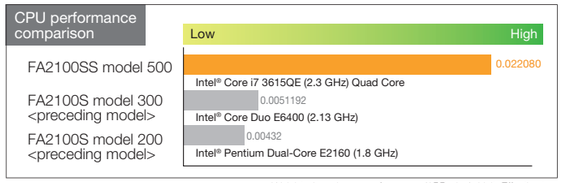
Compact yet More Powerful

This slim chassis of FA2100SS model 500 embodies robustness,maintainability, environmental resistance, and expansibility, all in the tiny body 100 mm wide, 310 mm high, and 340 mm deep.

As Compact as Before, but Faster and Higher in Performance

High-Performance CPU Third-Generation Intel® Core™ i7 Processor (2.3 GHz) Built in

This model incorporates a CPU third-generation Intel® Core™ i7 Processor 3615QE (2.3 GHz) for high-speed processing.



Weighted maximum performance (APPvalue) Unit: Effective tera

* 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.

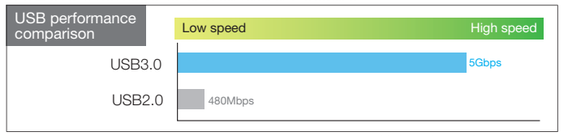
Gigabit (2-channel) Ethernet Interface is a Standard Feature

Gibabit-compatible 2-channel Ethernet interface (with automatic selection of 10BASE-T, 100BASE-TX, 1000BASE-T) is a standard feature (Compatible with the Wake-on LAN function).

High-Speed, High-Performance Chipset and Memory Employed

A Mobile Intel HM76 Express chipset and a high-speed memory with ECC function (8 GB maximum) are employed to offer highspeed data transfer.

USB3.0 Interface Is a Standard Feature



Maximum data transfer speed Unit: bps

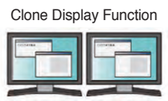
* The above shows maximum data transfer speeds in theoretical value.
The above performance may not always apply to your actual data transfer speed.
USB3.0 is incompatible to OS with Windows® XP.

Graphic Function with built-in CPU Chipset Provided

The graphic function with a built-in CPU chipset (compatible with full HD display) is provided. It permits multi display of the expansion desktop function, clone display function, etc.

Expansion Desktop Function Clone Display Function

Monitors are used for wide display



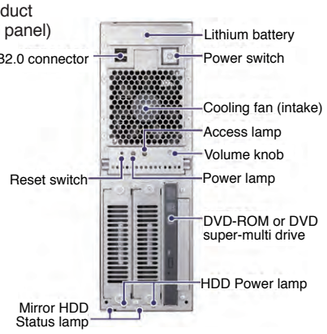
Monitors are used to show the same display on each screen.

Good Maintainability and Protection Structure

High Maintainability by Front Access

The hard disks, cooling fans, and lithium battery can be easily replaced from the front.

Front of the Product
(Inside the front panel)



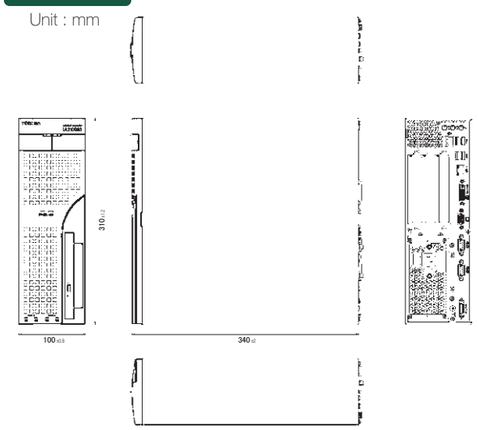
Vertical Installation (standard)
The stand is an optional part.

Vertical or Horizontal to Make Effective Use of Your Space

Horizontal Installation

Dimensions

Unit : mm



Security

Security Lock Plate*1

*1 Security lock plate is included as a standard component

Operation Error Prevention

Protection Cover

AC Cable Clamp

Specifications

FA2100SS		model 500	
		Single Disk Model	Mirroring Disk Model
Processor	Main Processor	Intel Core i7 3615QE (2.3GHz)	
	Level 3 Cache	6 MB (CPU built in)	
Chipset		Mobile Intel® HM76 Express Chipset	
Main Memory*1	Memory	DDR3 SDRAM (DDR3-1333/PC3-10600) with ECC check, DIMM 2 sockets	
	Capacity	Min. 2GB (2GB×1), Max. 8GB (4GB×2)	
Auxiliary Storage	Built-in HDD	Capacity: Max. two 160GB units mountable	Capacity: Two 160GB units mounted
	Built-in DVD-ROM	Required Options (Please choose from the 2 options)	
	Built-in DVD Super Multi-Drive		
RAID Compatible		—	RAID 1
Interface	COM Interface	RS-232C (9-pin D-SUB) x 2ch (rear)	
	USB Interface*2/*3	USBx2ch (rear) (TYPE A USB 3.0), USBx4ch (front/rear 2 ports each) (TYPE A USB 2.0)	
	Audio Interface*2/*4	LINE IN/LINE OUT/MIC IN (3.5φ mini jack) (rear)	
	Ethernet Interface	10 BASE-T/100 BASE-TX/1000 BASE-T (automatic switching) (RJ45) x 2ch (rear) Wake on LAN (main unit port only compatible)	
	DI/DO Interface	Options	
Expansion Interface		PCI slot 2 slots (half size*6/*7) PCI 3.0 PCI-Express (x16) 1 slot (half size*8) PCI Express 3.0	
Input Device	Keyboard	USB 104 keys (Japanese version USB 109 keys selectable)	
	Mouse	USB (optical)	
Software	OS (Operating System)*10/*11/*12	Windows® XP Professional SP3 (English edition) (32 bits) Windows® 7 Professional (English edition / Chinese edition / Korean edition) (32 bits)*14,*15 Windows® 7 Professional (English edition / Chinese edition / Korean edition) (64 bits)*14,*15	
	RAS Function *Option for model 5500	Fan stop detection, CPU temperature rise detection Internal temperature detection, Internal voltage detection Memory error detection, PCI bus error detection Digital input/output (DI/DO 4 points each; remote ON/OFF or remote initialize 1 point) Watchdog timer monitoring (at system startup/during system operation), hard disk monitor (Mirroring Disk only) 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	
Power Supply (Wide Range Power Supply)*16		Rated voltage 100 VAC/240 VAC, allowable voltage 85 to 264 VAC, allowable frequency 50 Hz/60 Hz±3Hz	
Electric Power Consumption		Max. 326W/340 VA	
Dimensions and Weight		100 (W) x 310 (H) x 340 (D) mm (without projections, stands) Weight: about 10 kg	
Input Device	Rubber foot (For use on desktop)	4 feet per set	
	AC power cable clamp	1 piece	
	Security lock plate*9	1 piece	

Optional Hardware Specifications

Expansion Main Memory	DDR3 SDRAM (DDR3-1333/PC3-10600) 2GB/4GB selectable,with ECC check
Built-in HDD	Single disk model capacity: 160 GB HDD 2 units mountable
	Mirroring disk model capacity: 160 GB (Hot swap compatible mirroring disk)
Built-in DVD-ROM	DVD-ROM speed 8x max. (read) / DVD-ROM speed 24x max. (read) / DVD-R speed 8x max. (read) DVD+R speed 8x max. (read)) / DVD-RW speed 8x max. (read) / DVD+RW speed 8x max. (read) DVD-RAM speed 5x max. (read) / CD-R speed 24x max. (read) / CD-RW speed 24x max. (read)
Built-in DVD super multi-drive*15 (SATA Interface)	DVD-ROM speed 8x max. (read) / DVD-ROM speed 24x max. (read) DVD-R speed 8x max. (write)/speed 8x max. (read) / DVD+R speed 8x max. (write)/speed 8x max. (read) DVD-RW speed 6x max. (write)/speed 8x max. (read) / DVD+RW speed 4x max. (write)/speed 8x max. (read) DVD-RAM speed 5x max. (write)/speed 5x max. (read) / CD-R speed 24x max. (write)/speed 24x max. (read) CD-R speed 24x max. (write)/speed 24x max. (read)
DI/DO Interface*5	(DI/DO board) Digital input/output (half-pitch 20-pin) DI 4 points, DO 4 points, remote input 1 point
RAS Terminal Board	DI 4 points, DO 4 points, remote input 1 point
RAS Cable	Half pitch 20-pin male at both ends, 2 m max.
RAS Terminal Board Mounting Panel	Simplified type
Stand	2 pieces per set

Installation Environment Conditions

Installation Environment	Temperature (Operating/Storage)	5 to 40°C (Temperature near vent) /-10 to 50°C
	Humidity (Operating/Storage)	20 to 80% RH(no condensation)/10 to 90% RH(no condensation)
	Vibration (Operating)*13	1.96m or less/s^2 (EIA C60068-2-6:9 to 150Hz 1cycle)
	(As Packed)	19.6m or less/s^2
	Shock (Operating/Storage)	19.6m or less/s^2/245m or less/s^2
	Dust (Operating/Storage)	0.3 mg/m^3 or less (JEITA-IT-1004A Class B compliant)
	Corrosive Gas (Operating/Storage)	Not to be detected
Allowable Instantaneous Interruption Time		20 ms or less (operating at rated voltage)

*1 If a main memory of 4 GB or more is installed with a 32-bit OS already installed in your system, the available memory capacity will be about 2.6 GB (default) in order to reserve the memory address area for PCI device, etc.
*2 Enable/disable can be set using BIOS.
*3 USB interface does not always guarantee the operation of all the USB devices.
*4 Use connecting units that meet the specifications below.
*5 No expansion at customer site because of pre-shipment options

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 PCI slot board size (174.63mm (L) x 106.68mm (H) or less) mountable
*7 Installable PCI boards are 5V key boards and 5V/3.3V shared key boards (Boards of 3.3V keys only cannot be installed)
*8 PCI Express slot board size (167.65 mm (L) x 111.15mm (H) or less) mountable
*9 Security lock plates are not mounted before shipment.
*10 Of the Operating Systems listed here, your specified OS will be installed.
*11 OS supply period is subject to change depending on the OS distribution period of the OS supplier. Windows® XP for Embedded System has to be delivered to end-users by 2016/12. It is available through Toshiba until 2016/9.
*12 Pre-installed Windows is licensed.
*13 Except during operation of auxiliary storage other than HDD
*14 If Windows® 7 is in use, the following functions are outside the scope of our support. Windows Bitlocker, Windows XP mode, XP mode, power-saving modes (suspend, hibernation)
*15 If the language to be used is English, Chinese or Korean, please specify the English version in your order. You will be asked to select English, Chinese (simplified/traditional), or Korean at the stage of Windows® 7 initial setup. If the wrong language is selected, your OS will have to be re-installed using the recovery media provided as an accessory.
*16 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.

FA2100S
model 300/200

Compact yet Powerful

The slim chassis of FA2100S model 300/200 embodies robustness, maintainability, environmental resistance, and expansibility, all in the tiny body 100 mm wide, 310 mm high, and 340 mm deep.

model 300: Intel Core 2 Duo processor (2.13 GHz)
model 200: Intel Pentium Dual-core processor (1.80 GHz)
Both models incorporate a 2-channel gigabit Ethernet as a standard interface, as well as Windows® 7 and other high-tech features. The high-reliability memory (4 GB maximum) with ECC *, the RAS function for internal surveillance of the hardware, and hot-swap mirroring disk (option) combine to support 24-hour continuous operation with stability under severe conditions as required for industrial computers. Product supply and maintenance are 12 years in all.

*If a 4-GB memory is chosen, the available memory capacity will be 3 GB to reserve a memory address area for the PCI device, etc.

Compact yet High Performance

Dual-Core Processor Built in

High-performance CPU Intel Core 2 Duo processor E6400 (2.13 GHz) or Intel Pentium Dual-Core processor E2160 (1.80 GHz) is built in for high-speed processing.

High-Speed, High-Performance Chipset and Memory Employed

An Intel 3010 chipset and a high-speed memory with the ECC function are employed for high-speed data transfer.

Slim Type for Versatile Uses

The slim type can be mounted horizontally or vertically so that it permits making effective use of the limited space of a panel or other equipment.

High Reliability for Supporting 24/7 Continuous Operation

Technology and Quality that Support 24-Hour Continuous Operation

Highly reliable, long-life parts are used, based on assumption of 24-hour continuous operation. The hardware is designed with derating taken into account. The individual parts are tested, and the product in your shipment configuration are put to function and temperature tests to determine that they fully satisfy the specifications (in the temperature range of 5 to 40°C) and the high quality requirements.

ECC Memory Employed

A highly reliable ECC memory capable of detecting and correcting memory errors is installed.

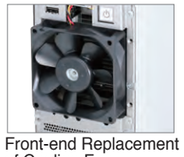
Good Maintainability and Protective Structure

Easy Maintenance by Front Access

The hard disks, cooling fans, and lithium battery can be easily replaced in front of the main unit.

Example of Replacement


Front-end Replacement of Hard Disk


Front-end Replacement of Cooling Fan

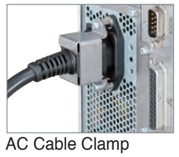
Front-end Replacement of Lithium Battery

Security


Security Lock Plate


Protection Cover

Operation Error Prevention


AC Cable Clamp

Types of Installation

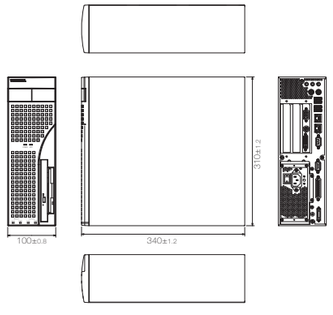
Vertical or horizontal as desired to make effective use of space

Horizontal


◄ Vertical (standard)

Dimensions

Unit : mm



Specifications

FA2100S		model 300	model 200
Processor	Main Processor	Intel Core 2 Duo processor E6400 (2.13GHz)	Intel Pentium Dual-Core processor E2160 (1.80GHz)
	Level 2 Cache	2 MB (CPU built in)	1 MB (CPU built in)
Chipset		Intel 3010	
Main Memory*1	Memory	DDR2 SDRAM (DDR2-667/PC2-5300) with ECC check, DIMM 2 sockets	
	Capacity	Min. 512 MB (512 MBx1), Max. 4 GB*2 (2 GBx2)	
Auxiliary Storage	Built-in HDD	Options (Refer to the table of Optional Hardware Specifications)	
	Built-in DVD-ROM		
	Built-in DVD Super Multi-Drive		
Interface	Serial Interface	RS-232C (9-pinD-SUB)×2ch(rear)	
	Parallel Interface	For printer (25-pin D-SUB) x 1ch (rear)	
	Keyboard Interface	PS/2×1ch (rear) or USB	
	Mouse Interface	PS/2×1ch (rear) or USB	
	USB Interface*3/*4	USB x 2ch (front), USB x 4ch (rear) (TYPE A USB2.0/1.1)	
	Audio Interface*4	LINE IN/LINE OUT/MIC IN*5 (3.5φ minijack) (rear)	
	Ethernet Interface*4	10 BASE-T/100 BASE-TX/1000 BASE-T (automatic switching) (RJ45)×2 ch (rear) / Wake on LAN (main unit port only compatible)	
	Display Interface	Analog RGB x 1ch (rear), DVI×1ch (rear)	
	DI/DO Interface*6	Options	
Expansion Interface		PCI slot: 2 slots (half size *7*8) PCI Express slot: 1 slot (exclusive to graphic board)	
Input Device	Keyboard*9	USB 104 keys (Japanese version USB 109 keys selectable)	
	Mouse*9	USB	
Software	OS (Operating System)*10*11*12	Windows® XP Professional (English edition) Windows Vista®Business Edition (English edition) Windows®7 Professional (English edition)*13	
	RAS Function	Watchdog timer Source voltage drop detection Internal temperature rise detection CPU temperature rise detection Fan stop detection Hard disk surveillance (mirroring disk only) Digital input/output (DI/DO: 4 points each, remote ON/OFF or remote initialize: 1 point) Error information save on RAS memory	
Power Supply (Wide Range Power Supply)*14		Rated voltage 100 VAC/240 VAC, allowable voltage 85 VAC to 264 VAC, allowable frequency 50 Hz/60 Hz±3Hz	
Electric Power Consumption		Max. 339 W/340 VA (without display)	
Dimensions and Weight		100(W)×310(H)×340(D)mm (without projections, stand) Weight: about 10.0 kg (without two stands which weigh about 1.2 kg)	
Accessories	Rubber Foot (For Use on Desk Top)	4 feet per set	
	Stand	2 per set	
	AC Power Cable Clamp	1 piece	
	Security Lock Plate*15	1 piece	

*1 A dual channel memory configuration requires installation of storage devices of the same capacity. Operation will not be guaranteed if you combine other than genuine storage devices for Toshiba industrial computers.
*2 If a 4 GB memory is installed, the available memory value will be about 3 GB in order to reserve the memory address area for PCI device, etc.
*3 USB interface does not always guarantee the operation of all the USB devices.
*4 Enable/disable can be set using BIOS.
*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 No expansion at customer site because of pre-shipment options
*7 PCI slot board size (174.63 mm (L) x 106.68 mm (H) or less) (half size) mountable
*8 Installable PCI boards are 5V key boards and 5V/3.3V shared key boards. (Boards of 3.3V keys only cannot be installed.)
*9 USB type or PS/2 type can be selected in your order.
*10 Of the Operating Systems listed here, your specified OS will be installed.
*11 OS supply period is subject to change depending on the OS distribution period of the OS supplier.
*12 The main unit and OS recovery media are compatible with OA (OEM Activation), so OS recovery or hardware configuration change does not require Windows license authentication.
*13 Windows®7 requires a minimum memory capacity of 1 GB. Windows®XP mode is outside the scope of our support.
*14 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.
*15 Security lock plates are not mounted before shipment.

Optional Hardware Specifications

Built-in HDD	Hard disk capacity: 160 GB 2 units mountable (SATA interface)
	Hot swap compatible mirroring disk *16 Capacity: 160 GB/500 GB (SATA interface)
Built-in DVD-ROM	DVD-ROM speed 8x max. (read) (SATA interface) / CD-ROM speed 24x max. (read)/ DVD-R speed 8x max. (read) / DVD+R speed 8x max. (read) / DVD-RW speed 8x max. (read) DVD+RW speed 8x max. (read) / DVD-RAM speed 5x max. (read) / CD-R speed 24x max. (read) / CD-RW speed 24x max. (read)
Built-in DVD Super Multi-Drive	DVD-ROM speed 8x max. (read) (SATA interface) / CD-ROM speed 24x max. (read) / DVD-R speed 8x max. (write)/speed 8x max. (read) / DVD+R speed 8x max. (write)/speed 8x max. (read) DVD-RW speed 6x max. (write)/speed 8x max. (read) / DVD+RW speed 4x max. (write)/speed 8x max. (read) / DVD-RAM speed 5x max. (write)/speed 5x max. (read) / CD-R speed 24x max. (write)/speed 24x max. (read) CD-RW speed 24x max. (write)/speed 24x max. (read)
Expansion Ethernet Interface	10 BASE-T/100 BASE-TX/1000 BASE-T(automatic switching) (RJ45) x 1ch (rear) (PCI bus)
DI/DO Interface*6	(DI/DO board) digital input/output (half-pitch 20-pin) DI 4 points、DO 4 points、remote input 1point
RAS Terminal Board	DI 4 points, DO 4 points, remote input 1 point
RAS Cable	Half-pitch 20-pin male at both ends, 2 m max.
RAS Terminal Board Mounting Panel	Simplified type

Installation Environment Conditions

Installation Environment	Temperature (Operating/Storage)	5 to 40°C/-10 to 50°C
	Humidity (Operating/Storage)	20 to 80% RH (no condensation) /10 to 90% RH (no condensation)
	Vibration (Operating)*17	1.96 m or less/s^2 (EIA C60068-2-6:9 to 150 Hz 1cycle)
	(As Packed)	19.6 m or less/s^2
	Shock (Operating/As packed)	19.6 m or less/s^2/245 m or less/s^2
	Dust (Operating/Storage)	0.3mg or less/m^3 (JEITA IT-1004 Class B compliant)
	Corrosive Gas (Operating/Storage)	No corrosives gases to be detected
Allowable Instantaneous Interruption Time		20 ms or less (operating at rated voltage)

*16 If hot-swap compatible mirroring disks are installed, other disks cannot be installed.
*17 Except during operation of auxiliary storage other than HDD

FA2100SB
model 300/200

UPS Function for Added Stability of Operation

Model 300 employs an Intel Core 2 Duo processor (2.13 GHz) and model 200, an Intel Pentium Dual-Core processor (1.8 GHz). Both models incorporate a 2-channel gigabit Ethernet as a standard interface and other high-tech features.

The high-reliability memory with ECC, the RAS function for internal surveillance of the hardware, and hot-swap mirroring disk (option) combine to support 24-hour continuous operation with stability under severe conditions as required for industrial computers.
Product supply and maintenance are 12 years in all.

The front panel is an optional part.

High Speed and High Performance

Dual-Core Processor Built in
High-performance CPU Intel Core 2 Duo processor E6400 (2.13 GHz) or Intel Pentium Dual-Core processor E2160 (1.80 GHz) is built in for high-speed processing.

High-Speed, High-Performance Chipset and Memory Employed
An Intel 3010 chipset and a high-speed memory with the ECC function are applied for high-speed data transfer.

Gigabit Ethernet I/F in Standard Specification (2ch)
Two channels of Gigabit Ethernet I/F (10BASE-T/100BASE-T/1000BASE-T for automatic switching) are provided in the standard specification. (Wake on LAN function compatible)

High-Performance Graphic Board Built in
A high-performance graphic board (with a maximum resolution of 2560 x 1600) is built in. Dual display of the multi-monitor function and clone monitor function is available.

High Reliability for Supporting 24/7 Continuous Operation

Technology and Quality that Support 24-Hour Continuous Operation
Highly reliable, long-life parts are used, based on assumption of 24-hour continuous operation. The individual parts are tested, and the products in your shipment configuration are put to function and temperature tests to determine that they fully satisfy the specifications (in the temperature range of 5 to 40 °C) and the high quality requirements.

ECC Memory Employed
A highly reliable ECC memory capable of detecting and correcting memory errors is installed.

Power Battery Mounted as a Standard Component
The special UPS management function ensures continued operation in a power failure, and automatic restart in case of OS shutdown or after power recovery during OS shutdown.

Good Maintainability and Protective Structure

Easy Maintenance by Front Access
The hard disks, cooling fans, and lithium battery can be easily replaced in front of the main unit.

Example of Replacement


Front-end Replacement of Hard Disk


Front-end Replacement of Cooling Fan

Front-end Replacement of Lithium Battery

Security


Front-end Replacement of Power Battery


Security Lock Plate

Operation Error Prevention


AC Cable Clamp

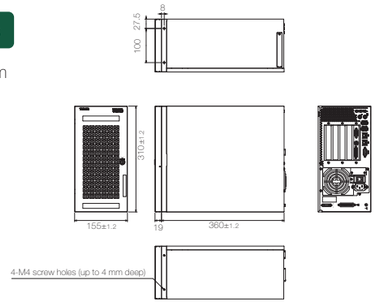
Types of Installation

Horizontal ▼

Vertical ►

Dimensions

Unit : mm



Specifications

FA2100SB		model 300	model 200
Processor	Main Processor	Intel Core 2 Duo processor E6400 (2.13 GHz)	Intel Pentium Dual-Core processor E2160 (1.80 GHz)
	Level 2 Cache	2 MB (CPU built in)	1 MB (CPU built in)
Chipset		Intel 3010	
Main Memory*1	Memory	DDR2 SDRAM(DDR2-667/PC2-5300) with ECC check, DIMM 2 sockets	
	Capacity	Min. 512MB (512MB×1) ,Max. 4GB*2(2GB×2)	
Auxiliary Storage	Built-in HDD	Options (Refer to the table of Optional Hardware Specifications)	
	Built-in DVD-ROM		
	Built-in DVD Super Multi-Drive		
Interface	Serial Interface	RS-232C (9-pin D-SUB)×1ch (rear)	
	Parallel Interface	For printer (25-pin D-SUB) x 1ch (rear)	
	Keyboard Interface	PS/2×1ch (rear) or USB	
	Mouse Interface	PS/2×1ch (rear) or USB	
	USB Interface*3*4	USB x 2ch (front), USB x 4ch (rear) (TYPE A USB2.0/1.1)	
	Audio Interface*4	LINE IN / LINE OUT / MIC IN*5 (3.5φ stereo mini jack) (rear)	
	Ethernet Interface*4	10BASE-T/100BASE-TX/1000BASE-T(automatic switching) (RJ45) ×2ch (rear) /Wake on LAN (main unit port only compatible)	
	Display Interface	Analog RGB×1ch, DVI×1ch (rear)	
	DI/DO Interface*6	Options	
Expansion Interface		PCI slot: 3 slots (half size*7*8) PCI-Express slot: 2 slots*9 (1 slot exclusive to graphic board)	
Input Device	Keyboard	USB 104 keys (Japanese version USB 109 keys selectable)	
	Mouse	USB	
Software	OS (Operating System)*10*11*12	Windows®XP Professional (English edition) Windows®7 Professional (English edition, planned)*13	
	RAS Function	Watchdog timer Source voltage drop detection Internal temperature rise detection CPU temperature rise detection Fan stop detection Hard disk monitoring (mirroring disk only) Digital input/output (DI/DO: 4 points each), remote ON/OFF or remote initialize: 1 point) Error information save on RAS memory	
Power Supply (Wide Range Power Supply)*14		Rated voltage 100 VAC/240 VAC, allowable voltage 85 to 264 VAC, allowable frequency 50Hz / 60Hz±3Hz	
Electric Power Consumption		Max. 507 W / 513 VA	
Power Supply Battery*15*16*17	Battery Type	Nickel hydrogen battery	
	Charging Time*18	About 15 hours	
	Expected Life	About 3 years (working temperature 30 , discharge frequency: a few times per year)	
	Backup Time*18*19	About 5 minutes (full charge)	
Dimensions and Weight		155 (W) ×310 (H) ×360 (D) mm (without projections) Weight : about 15.4 kg	
Accessories	Rubber Foot (For Use on Desk Top)	4 feet per set	
	AC Power Cable Clamp	1 piece	
	Security Lock Plate*20	1 piece	

Optional Hardware Specifications

Expansion Main Memory	DDR2 SDRAM(DDR2-667/PC2-5300) 512 MB/1GB / 2GB selectable, with ECC check
Built-in HDD (SATA Interface)	Hard disk capacity: 160 GB 2 units mountable
	Hot swap compatible mirroring disk *21 Capacity: 160 GB
Built-in DVD-ROM (SATA Interface)	DVD-ROM speed 8x max. (read) / CD-ROM speed 24x max. (read) / DVD-R speed 8x max. (read) DVD+R speed 8x max. (read) / DVD-RW speed 8x max. (read) / DVD+RW speed 6x max. (read) DVD-RAM speed 5x max. (read) / CD-R speed 24x max. (read) / CD-RW speed 24x max. (read)
BuiltI-in DVD Super Multi (SATA Interface)	DVD-ROM speed 8x max. (read) / CD-ROM speed 24x max. (read) / DVD-R speed 8x max. (write)/speed 8x max. (read) DVD+R speed 8x max. (write)/speed 8x max. (read) / DVD-RW speed 6x max. (write)/speed 8x max. (read) DVD+RW speed 4x max. (write)/speed 8x max. (read) / DVD-RAM speed 5x max. (write)/speed 5x max. (read) CD-R speed 24x max. (write)/speed 24x max. (read) / CD-RW speed 24x max. (write)/speed 24x max. (read)
Expansion Ethernet Interface	10 BASE-T/100 BASE-TX/1000 BASE-T(automatic switching) (RJ45)×1ch (rear) (PCI bus)
DI/DO Interface*6	(DI/DO board) digital input/output (half-pitch 20-pin) DI 4 points、DO 4 points、remote input 1point
RAS Terminal Board	DI 4 points, DO 4 points, remote input 1 point
RAS Terminal Board Mounting Panel	Simplified type
RAS Cable	Half pitch 20-pin male at both ends, 2 m max.
Front Panel	1 piece (with mounting parts and security key) Weight: About 600 g Dimensions: 155 (W) ×310 (H) ×20 (D) mm (without projections)
Stand	2 pieces per set

Installation Environment Conditions

Installation Environment	Temperature (Operating/Storage)	5 to 40°C/-10 to 50°C
	Humidity (Operating/Storage)	20 to 80% RH (no condensation) /10 to 90% RH (no condensation)
	Vibration (Operating)*22	1.96m or less/s^2 (EIA C60068-2-6:9 to 150 Hz 1cycle)
	(As Packed)	19.6 m or less/s^2
	Shock (Operating/As Packed)	19.6 m or less/s^2/245 m or less/s^2
	Dust (Operating/Storage)	0.3mg or less/m^3 (JEITA IT-1004 Class B compliant)
	Corrosive Gas (Operating/Storage)	No corrosives gases to be detected
Allowable Instantaneous Interruption Time		20 ms or less (operating at rated voltage)

*1 A dual channel memory configuration requires installation of storage devices of the same capacity. Operation will not be guaranteed if you combine other than genuine storage devices for Toshiba industrial computers.
*2 If a 4 GB memory is installed, the available memory value will be about 3 GB in order to reserve the memory address area for PCI device, etc.
*3 USB interface does not always guarantee the operation of all the USB devices.
*4 Enable/disable can be set using BIOS.
*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 No expansion at customer site because of pre-shipment options
*7 PCI slot board size (174.63 mm (L) x 106.68 mm (H) or less) (half size) mountable
*8 Installable PCI boards are 5V key boards and 5V/3.3V shared key boards. (Boards of 3.3V keys only cannot be installed.)
*9 PCI Express slot board size (167.65 mm (L) x 111.15 mm (H)) mountable
*10 Of the Operating Systems listed here, your specified OS will be installed.
*11 OS supply period is subject to change depending on the OS distribution period of the OS supplier.
*12 The main unit and OS recovery media are compatible with OA (OEM Activation), so OS re-recovery or hardware configuration change does not require Windows license authentication.
*13 Windows®7 requires a minimum memory capacity of 1 GB. Windows®XP mode is outside the scope of our support.
*14 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.
*15 Power may be supplied by the power supply battery even if the power cord is disconnected or if no AC power is supplied. Be sure to set the AC switch on the back of the main unit to the off position before system expansion, or installation on the chassis, or maintenance.
*16 The power supply battery, different from UPS (uninterrupted power supply) units in general, is for safe OS shutdown in a power failure, for example. The power supply battery can be controlled from the OS that supports the UPS function. Speedy OS shutdown must be set after changeover to the power supply battery in a power failure, for example.
A power interruption during system operation could cause system malfunction or destruction of data or programs.
*17 Do not disassemble, modify or shortcircuit the product. If you disassemble it or use it in an inappropriate way, it could cause injuries, battery fluid leakage, ignition, overheat, or explosion. Ask your Toshiba service office for maintenance or repairs.
*18 Charging time and backup time may differ from the specified durations of time depending on your conditions of use.
*19 Select a time for terminating your application so that the OS will be shut down within the backup time.
*20 Security lock plates are not mounted before shipment.
*21 If hot-swap compatible mirroring disks are installed, other disks cannot be installed.
*22 Except during operation of auxiliary storage other than HDD

FR2100S
model 300 / 200

2U Rack Mount Solution

Model 300 employs an Intel Core Duo processor (2.13 GHz) and model 200, an Intel Pentium Dual-Core processor (1.8 GHz). Both models incorporate a 2-channel gigabit Ethernet as a standard interface, and other high-tech features, including compatibility with Windows® 7.
The high-reliability memory (4 GB maximum) with ECC, the RAS function for internal surveillance of the hardware, and hot-swap mirroring disk (option) combine to support 24-hour continuous operation with stability under severe conditions as required for industrial computers.

High Speed and High Performance

Dual-Core Processor Built in
High-performance CPU Intel Core 2 Duo processor E6400 (2.13 GHz) or Intel Pentium Dual-Core processor E2160 (1.80 GHz) is built in for high-speed processing.

High-Speed, High-Performance Chipset and Memory Employed
An Intel 3010 chipset and a high-speed memory with the ECC function are employed for high-speed data transfer.

Gigabit Ethernet I/F in Standard Specification (2ch)
Two channels of Gigabit Ethernet I/F (10BASE-T/100BASE-T/1000BASE-T for automatic switching) are provided in the standard specification. (Wake on LAN function compatible)

High-Performance Graphic Board Compatible with Windows® 7 Built in
A high-performance graphic board (with a maximum resolution of 2560 x 1600) compatible with Windows® 7 is built in. Dual display of the multi-monitor function and clone monitor function is available.

High Reliability for Supporting 24/7 Continuous Operation

Technology and Quality that Support 24-Hour Continuous Operation
Highly reliable, long-life parts are uded, based on assumption of 24-hour continuous operation. The individual parts are tested, and the products in your shipment configuration are put to function and temperature tests to determine that they fully satisfy the specifications (in the temperature range of 5 to 40°C) and the high quality requirements.

ECC Memory Employed
A highly reliable ECC memory capable of detecting and correcting memory errors is installed.

RAID1 Available (RAID Disk model), Option
The hot swap function permits replacement of failed hard disks without computer shutdown, thus assuring improved reliability.

Newly Developed RAID Controller Board
In addition to the RAID disk monitor function, this controller board has the patrol function for periodic read check on all disk areas, outputs a buzzer sound in case of a drive failure, the RAS function for logging, and lights the status lamps for warning.

Good Maintainability and Protective Structure

High Maintainability by Front Access
Hard disks, cooling fan, and lithium battery can be easily replaced in front of the main unit.

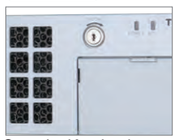
Example of Replacement

Front-end Replacement of Hard Disk

Front-end Replacement of Cooling Fan

Front-end Replacement of Lithium Battery

Security



Security Key Lock

Operation Error Prevention

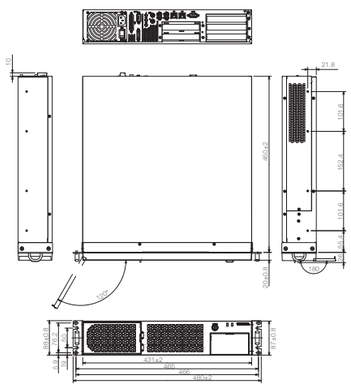
AC Cable Clamp

Example of Mounting in a Type 19 Rack

Rack mounting parts (EIA compliant) are supplied as standard accessories.
Slide rails can be attached when installing in an EIA rack.
When using slide rails, choose commercial slide rails of the following specifications.
[Specifications] Length: 406 mm / thickness: 9.5 mm / 2-level type, removable

Dimensions

Unit : mm



Specifications

FR2100S		model 300	model 200
Processor	Main Processor	Intel Core 2 Duo processor E6400 (2.13 GHz)	Intel Pentium Dual-Core processor E2160 (1.80 GHz)
	Level 2 Cache	2 MB (CPU built in)	1MB (CPU built in)
Chipset		Intel 3010	
Main Memory*1	Memory	DDR2 SDRAM(DDR2-667/PC2-5300) with ECC check, DIMM 2 sockets	
	Capacity	Min. 512 MB (512 MB×1), Max. 4GB*2 (2 GB×2)	
Auxiliary Storage	Built-in HDD	Options (Refer to the table of Optional Hardware Specifications)	
	Built-in DVD-ROM		
	Built-in DVD Super Multi-Drive		
Interface	Serial Interface	RS-232C(9-pin D-SUB)×2ch (rear)	
	Parallel Interface	For printer (25-pin D-SUB) x 1ch (rear)	
	Keyboard Interface	PS/2×1ch (rear) or USB	
	Mouse Interface	PS/2×1ch (rear) or USB	
	USB Interface*3/*4	USB x 2ch (front), USB x 4ch (rear) (TYPE A USB2.0/1.1)	
	Audio Interface*4	LINE IN / LINE OUT / MIC IN*5 (3.5φ mini jack)(rear)	
	Ethernet Interface*4	10 BASE-T/100 BASE-TX/1000 BASE-T(automatic switching) (RJ45)×2ch (rear) /Wake on LAN (main unit port only compatible)	
	Display Interface	Analog RGB×1ch、DVI×1ch (rear)	
	DI/DO Interface*6	Options	
Expansion Interface		PCI slot*7: 3 slots (full size*8×1), (half size*9×2), PCI2.3 PCI-Express slot: 2 slots half size x 1 slot (exclusive to graphic board) full size *10 x 1 slot, PCI Express 1.0a	
Input Device	Keyboard	USB 104 keys (Japanese version USB 109 keys selectable)	
	Mouse	USB	
Software	OS (Operating System)*11/*12/*13	Windows®XP Professional (English edition) Windows Vista®Business (English edition) Windows®7 Professional (English edition)*14	
	RAS Function	Watchdog timer Source voltage drop detection Internal temperature rise detection CPU temperature rise detection Fan stop detection Hard disk monitoring (Mirroring disk only) Digital input/output (DI/DO: 4 points each, remote ON/OFF or initialize: 1 point) Error information save on RAS memory	
Power Supply (Wide Range Power Supply)*15		Rated voltage 100 VAC/240 VAC, allowable voltage 85 to 264 VAC, allowable frequency 50Hz / 60Hz±3Hz	
Electric Power Consumption		Max. 575 W/581 VA (without display)	
Dimensions and Weight		Rack mount (horizontal mounting, standard) 431 (W)×87 (H)×470 (D) mm (without projections) Weight: About 15.0 kg	
Accessories	Rubber Foot (For Use on Desk Top)	4 feet per set	
	AC Power Cable Clamp	1 piece	
	Security Lock Plate*16	1 piece	

Optional Hardware Specifications

Expansion Main Memory	DDR2 SDRAM (DDR2-667/PC2-5300) 512 MB / 1GB / 2GB selectable, with ECC check
Built-in HDD (SATA Interface)	Single disk model capacity: 160 GB, 2 units mountable
	Mirroring disk model capacity: 160 GB/500 GB 2 units mountable hot swap-compatible mirroring disk *17
Built-in DVD-ROM (SATA Interface)*18	DVD-ROM speed 8x max. (read) / DVD-ROM speed 24x max. (read) / DVD-R speed 8x max. (read) DVD+ROM speed 8x max. (read) / DVD-RW speed 8x max. (read) / DVD+RW speed 8x max.
BuiltI-in DVD Super Multi-Drive (SATA Interface)*18	DVD-ROM speed 8x max. (read) / CD-ROM speed 24x max. (read) DVD-R speed 8x max. (write)/speed 8x max. (read) / DVD+R speed 8x max. (write)/speed 8x max. (read)
Expansion Ethernet Interface	10 BASE-T/100 BASE-TX/1000 BASE-T(automatic switching) (RJ45)×1ch (rear) (PCIbus)
DI/DO Interface*6	(DI/DO board) digital input/output (half-pitch 20-pin) DI 4 points, DO 4 points, remote input 1 point
RAS Terminal Board	DI 4 points, DO 4 points, remote input 1 point
RAS Cable	Half-pitch 20-pin male at both ends, 2 m max.
RAS Terminal Board Mounting Panel	Simplified type

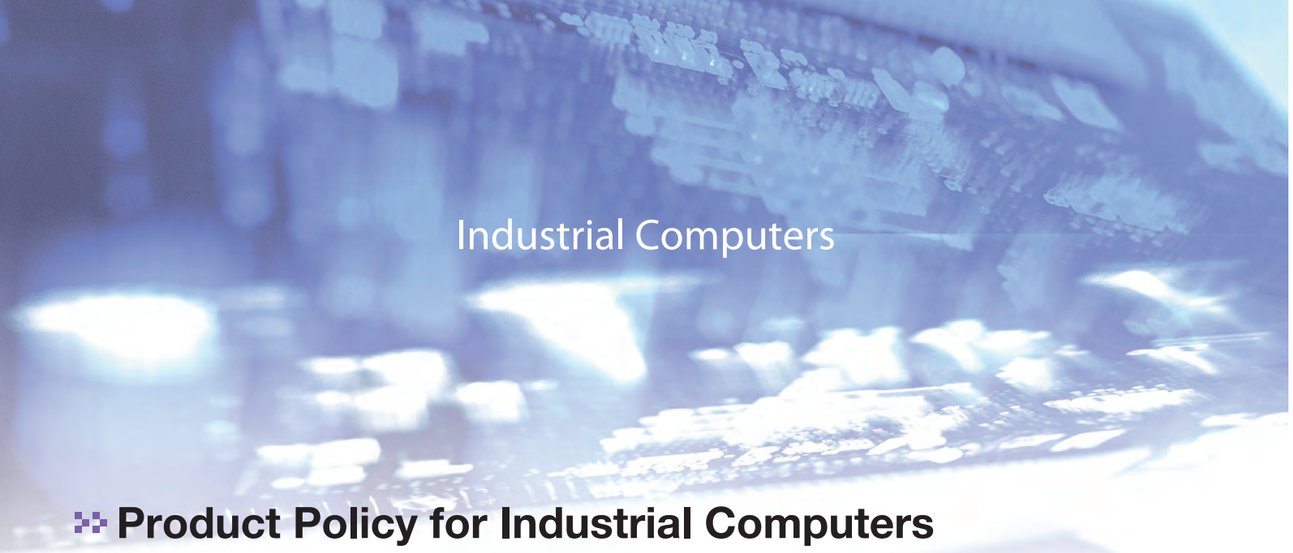
Installation Environment Conditions

Installation Environment	Temperature (Operating/Storage)	5 to 40°C/-10 to 50°C
	Humidity (Operating/Storage)	20 to 80% RH (no condensation) /10 to 90% RH (no condensation)
	Vibration (Operating)*19	1.96m or less/s^2 (JIS C60068-2-6:9 to 150 Hz 1cycle)
	(As Packed)	19.6 m or less/s^2
	Shock (Operating/As Packed)	19.6 m or less/s^2/245 m or less/s^2
	Dust (Operating/Storage)	0.3mg or less/m^3 (JEITA IT-1004 Class B compliant)
	Corrosive Gas (Operating/Storage)	Not to be detected
Allowable Instantaneous Interruption Time		20 ms or less (operating at rated voltage)

*1 A dual channel memory configuration requires installation of storage devices of the same capacity. Operation will not be guaranteed if you combine other than genuine storage devices for Toshiba industrial computers.
*2 If a 4 GB memory is installed, the available memory value will be about 3 GB in order to reserve the memory address area for PCI device, etc.
*3 USB interface does not always guarantee the operation of all the USB devices.
*4 Enable/disable can be set using BIOS.
*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 No expansion at customer site because of pre-shipment options
*7 Installable PCI boards are 5V key boards and 5V/3.3V shared key boards. (Boards of 3.3V keys only cannot be installed.)
*8 PCI slot board size (312 mm (L) x 106.68 mm (H) or less) (full size) mountable
*9 PCI slot board size (174.63 mm (L) x 106.68 mm (H) or less) (half size) mountable
*10 PCI Express slot board size (312 mm (L) x 111.15 mm (H) or less) mountable
*11 Of the Operating Systems listed here, your specified OS will be installed.
*12 OS supply period is subject to change depending on the OS distribution period of the OS supplier.
*13 The main unit and OS recovery media are compatible with OA (OEM Activation), so OS recovery or hardware configuration change does not require Windows license authentication.
*14 Windows®7 requires a minimum memory capacity of 1 GB. Windows®XP mode is outside the scope of our support.
*15 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.
*16 Security lock plates are not mounted before shipment.
*17 If hot-swap compatible mirroring disks are installed, other disks cannot be installed.
*18 Either option, DVD-ROM or DVD super multi, can be selected before shipment.
*19 Except during operation of auxiliary storage other than HDD



Product Policy for Industrial Computers

Industrial computers are developed, manufactured, and tested under the following policy to shorten downtime due to parts failure and reduce maintenance expenses.

Safety Design with Low Failure Rate, Strict Shipment Inspection

Highly reliable, long-life parts are used for assumed computer operation around the clock, and the hardware is designed with derating taken into account. All products are put to function and temperature tests before shipment for the purpose of eliminating rejects and preventing initial failures after shipment.

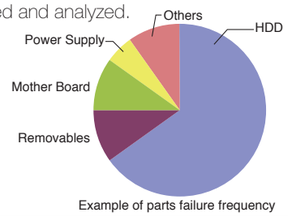
Full RAS Function

The Toshiba's RAS function covers computer operation diagnosis, early error detection and notification, forced shutdown in case of difficulty of continued operation and restart, all for assuring stable industrial computer operation over a long period of time and, if trouble should occur, provides an event log to support troubleshooting and early restoration to normal operation.

Expendable Parts Located Upfront for Easy Replacement

Toshiba Industrial Computer is designed for easy replacement of expendable parts because they are located in the front section*1. Quick replacement shortens computer down time for maintenance*2.

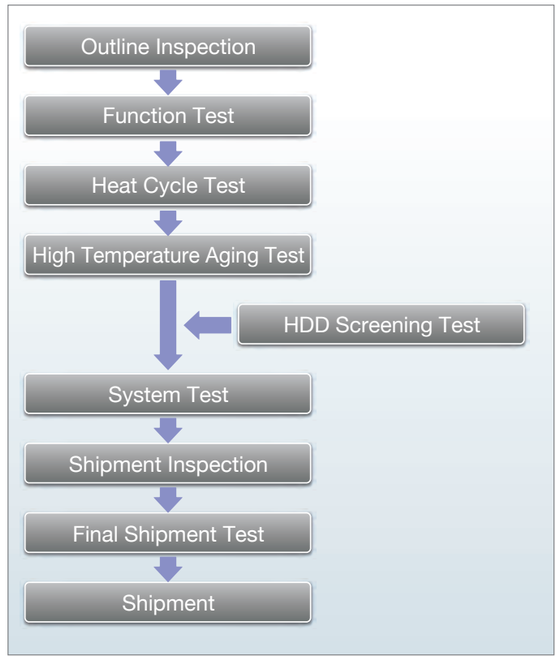
*1 Refer to the pages giving a description of the individual products.
*2 Comparison with consumer PCs

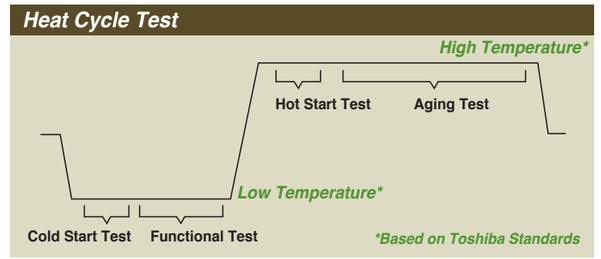
Industrial Computers	Consumer-use Computers
AFR (Average Annualized Failure Rates) of Toshiba Industrial Computers << AFR of Consumer Computers: 5%*3	
Accumulated failure database Field failure data are accumulated and analyzed. Toshiba focuses to reduce HDD failure by screening inspection.  Example of parts failure frequency	**Failure data are not categorized.**
Preventive Maintenance Design (Toshiba policy) Robust design/strict shipment inspection ➡ Low AFR - Robust design and strict shipment inspection are pursued to offer products of failure-resistant parts ranging from HDDs to power units and motherboards **Front-Access Design ➡ Easy Maintenance** - Front-access design facilitates easy maintenance.	**No Preventive Assessment**
Effective RAS Function The RAS function not only facilitates trouble analysis but also offers the information necessary for continued stability of operation.	**No RAS Function** It takes time for trouble analysis because of absence of RAS function.

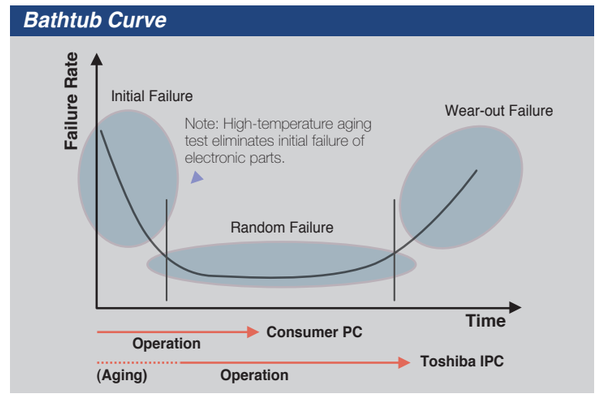
*3 Source: Gartner Home Page http://www.gartner.com/press_releases/asset_154164_11.html

Strict Shipment Inspection

All the products are put to strict shipment inspection.







· Low-AFR data guarantees the robustness of Toshiba Industrial Computers.

High-Environmental Resistance Design

The following design policy assures continuous operation to be possible even under severe conditions in the industrial field.
This means that Industrial Computers can be applied to a wide range of uses in the industrial field where environmental conditions are severe.

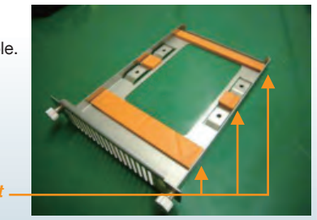
Dustproof

- An air filter, a standard component, covers the cooling air intake.
- The high internal pressure prevents dust from entering the main unit.
- The forced intake fan and exhaust fan maintain the high pressure inside the main unit.

Disk Module with Tray ▶

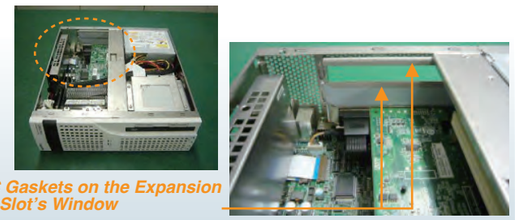
Vibration and Shock

- The chassis is designed for high resistance to vibration, using vibration-free rubber feet for HDD, for example.
- Connectors with highly reliable contacts are utilized.
- Whenever a new connector is applied to the product, it is evaluated by a high-level evaluation method in an in-house laboratory.
- Disk option: Silicon disk (for FA2100S model 300/200)



Vibration-free Rubber Feet on Disk Tray

Example of Gaskets Installed in FA2100S



EMC Gaskets on the Expansion Bus Slot's Window

Noise

- High-level Toshiba design standard

Electromagnetic Radiation Shield

►► Gap-free chassis design (e.g. gaskets in expansion bus slot window)

Reduction of Electromagnetic Radiation Sources

►► Appropriate position of bypass capacitors and noise filters on printed circuit boards

►► Examination of component positions and signal patterns to control unnecessary electromagnetic radiation from printed circuit boards (resonance analysis)

- Test standards and the EMC Test Center support the in-house development process with high-level evaluation technology.
- Toshiba issues a declaration of conformity with “CE Marking” for Toshiba products. Toshiba products are also certified by “UL” and “CCC”.

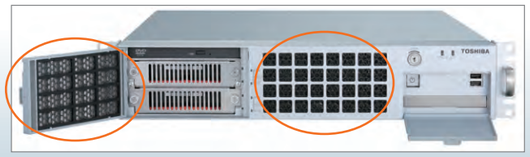
EMC Test Center and its Anechoic Chamber

High-Reliability Design

Reinforced Cooling Performance

Two intake fans in the front and one exhaust fan in the rear. Different from consumer computers, these products used a direct cooling method by direct exposure of the CPU heat sink to the air from the intake fans, without using CPU cooler fans. FA3100S model 9500/5500, in particular, feature the 3-lane separate structure, which separates heat flows in the major parts of the main unit, to reinforce their cooling performance.

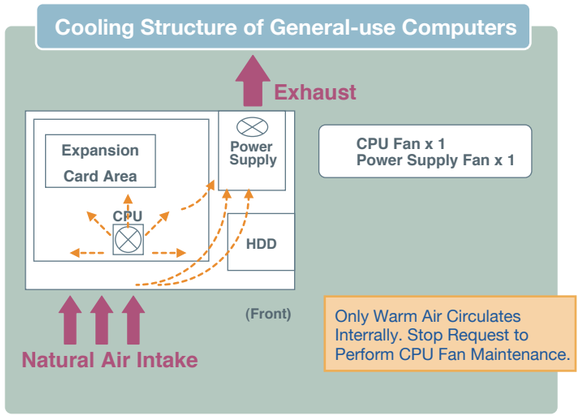
(e.g. FA3100S Series)

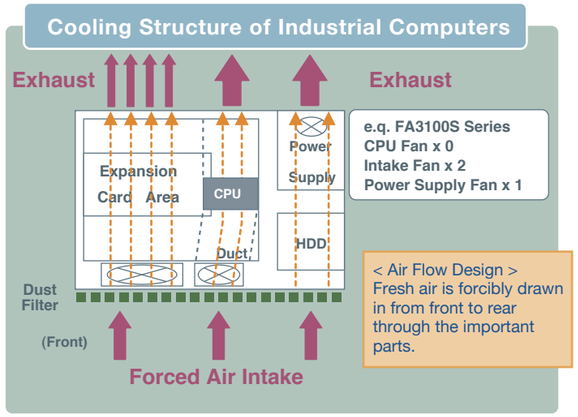


(e.g. FR2100S Series)

Ambient Operating Temperature

Industrial Computers: 5 to 40 °C (41 to 104 °F)
Consumer computers, servers: 10 to 35 °C (50 to 95 °F)





ECC Memory

A highly reliable ECC memory capable of detecting and correcting errors is utilized.

RAID1/5 (RAID disk model)

The hot-Swap feature not only improves reliability but it also permits the quick replacement of failed hard disks without a computer shutdown.

RAID Controller Board (RAID Disk Model)

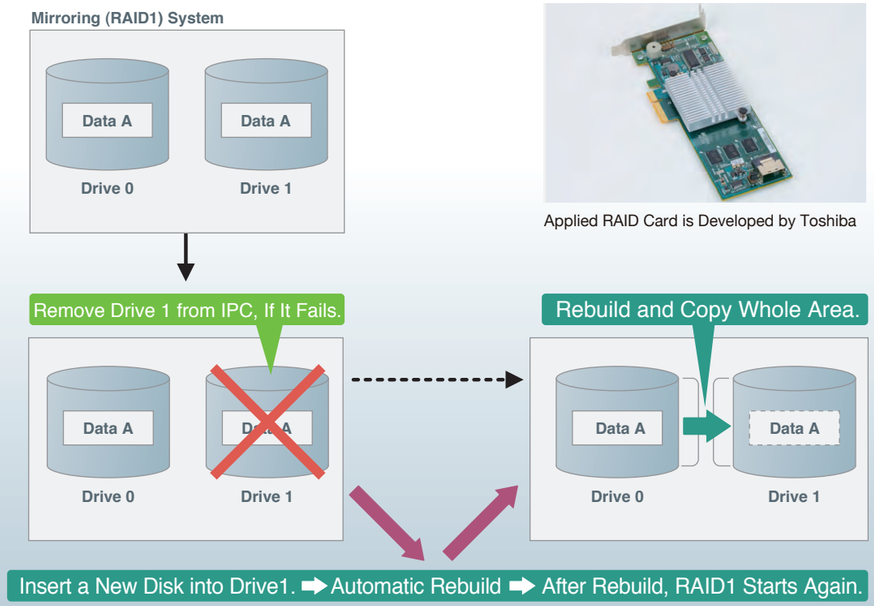
In addition to disk monitoring, the RAID Controller Board periodically performs a read check of the entire disk area. In case of a drive failure, a warning buzzer is sounded, the RAS function logs the failure, and status lamps alert the user.

HDD Mirroring (RAID1)

►► RAID system keeps operating even if one HDD crashes.
►► Hot Swap Function: HDD can be replaced without computer shutdown
►► Easy to Rebuild: By simply replacing an HDD, data will be automatically copied and RAID1 will be configured.

Toshiba’s Original RAID System has a Preventive Maintenance Function.

►► The RAID System patrols read check on the entire HDD area.
The patrol function automatically finds errors, if any, and corrects them.
►► This leads to an improved HDD fault tolerance.

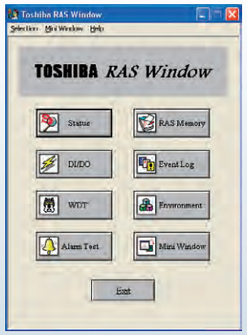


Applied RAID Card is Developed by Toshiba

Effective RAS Function

RAS: System Diagnostic, Surveillance Function

Industrial Computers have the following system diagnostic and surveillance function called RAS. This function enables you to monitor the operating condition of the different parts of the product and identifies faults, if any.



- Main Unit Temperature Error
- Monitoring Lithium Battery Voltage And Input Voltage
- Monitoring Fan Operation
- Monitoring Hard Disks
- Monitoring Program Crash (Watchdog Timer Monitoring)
- Internal Temperature Trend Monitoring
- Event Logging
- Monitoring Parts Of Limited Service Life For Length Of Use

Early detection of system errors leads to steps to be taken before system down.

Advantages

It is easy for you, the user, to identify faults, if any.
This offers you the advantage of a speedy recovery from a failure, reducing recovery expenses, and management of periodic replacement of parts with limited service life.

Capabilities

The RAS function covers system status detection and system control as described below.

System Status Detection

Watchdog Timer*1	Hardware WDT to detect and notify software crash
Source Voltage Drop Detection *2	Detects source voltage drop during operation
Internal Temperature Rise Detection	Detects internal temperature rise above permissible level and notifies as temperature error
CPU Temperature Rise Detection	Detects CPU temperature rise above permissible level and notifies as temperature error
Fan Stop Detection	Detects stoppage of intake or exhaust fans and notifies as fan stop
Hard Disk Monitor	Detects and notifies hard disk errors (This applies to RAID only.)
Digital Input/Output (DI/DO, 4 Each)	External digital signals (4 digital inputs, 4 digital outputs)(Interrupt signal can be specified for inputs.)

*1 DO output upon timeout on the watchdog timer is selectable with the DIP switches on the main board
*2 DO output at secondary source voltage drop is selectable with the DIP switches on the main board

System Control Function

Software Power Off (Shutdown)	Power is turned off with power switch after automatic OS shutdown.
Remote Initialize *3	External signal restarts OS after its automatic shutdown
Remote Power On/Off *3	External signal turns power on and turns it off after OS automatic shutdown.
RAS Memory Information Storage	Information on start, run, stop is stored in RAS memory (non-volatile memory with battery backup)

*3 Either remote initialize or remote power on/off can be selected. Default (before shipment): Remote initialize

Product Supply over a Long Period of Time and Satisfactory Maintenance Service

Toshiba assures stable supply of the products mentioned in this brochure over a long period of time and offers satisfactory maintenance service.

FA3100G: Toshiba will supply this product for three years after its introduction to the market, and provide maintenance service for three years after the termination of its production.

FA3100S, FA2100S, FA2100SB, FR2100S: Toshiba will supply these products for five years after their introduction to the market, and provide maintenance service for seven years after the termination of their production.

For the supply and maintenance periods of the individual products, see the table below.

Product	FA3100G model 1000	FA3100S model 9500/5500	FR2100S model 300/200	FA2100S model 300/200	FA2100SB model 300/200
Introduction To Market	2010/12	model 9500: 2008/11 model 5500: 2009/3	2009/3	model 300: 2008/7 model 200: 2008/10	2009/12
Supply Period	3 years	5 years	5 years	5 years	5 years
Maintenance Period	3 years	7 years	7 years	7 years	7 years

Reliable Service
If you have any question, please call your nearest Toshiba service station.