

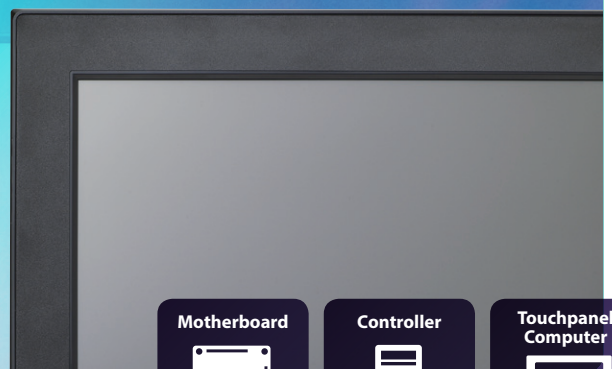
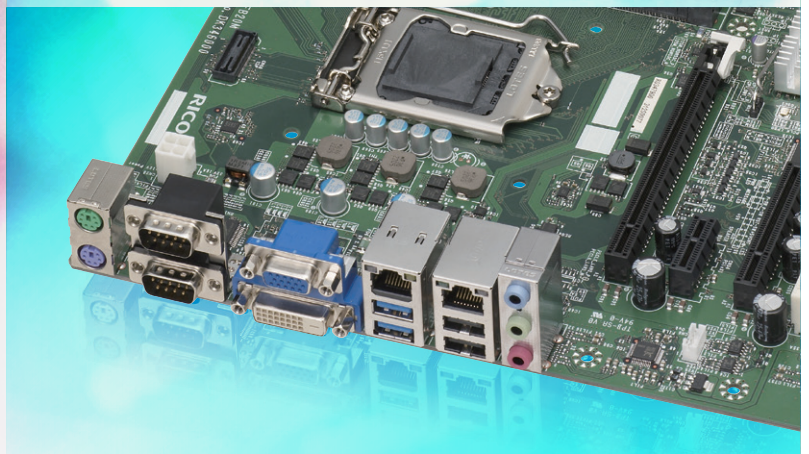
Embedded
Motherboards/Controllers/Touchpanel Computers

Embedded Unit Product Guide

Designed and Produced in Japan

2016

RICOH
imagine. change.



Motherboard



Controller



Touchpanel
Computer



We can satisfy your expectations with total capabilities

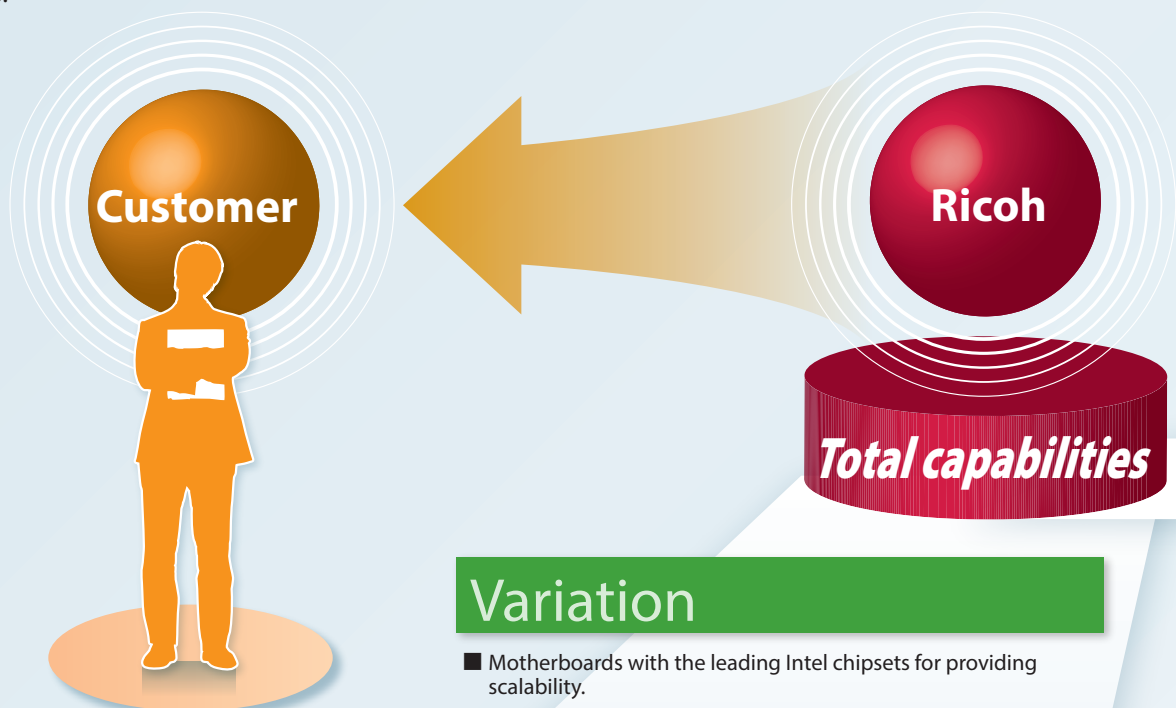
Ricoh Industrial Solutions is a leading Japanese supplier of highly reliable embedded motherboards and system level products with the latest Intel® and ARM® platform.

We design and produce products in-house to meet your specific requirement with high quality.

And also we can provide custom design and production service by leveraging the accumulated long term experience.

Using the capabilities of the Ricoh Group supply network, we promise to provide products for at least 5 years from the launch and provide access to our extensive support.

Ricoh Industrial Solutions is provider of embedded solutions for creating high value through all stages of your business.



Variation

- Motherboards with the leading Intel chipsets for providing scalability.
- Customized Embedded controllers and touch panel computers that meet your specific request.
- Products with ARM® processors for a wider range of markets and applications.

Trust

- 3-year warranty

3-Year Warranty : Applicable Products

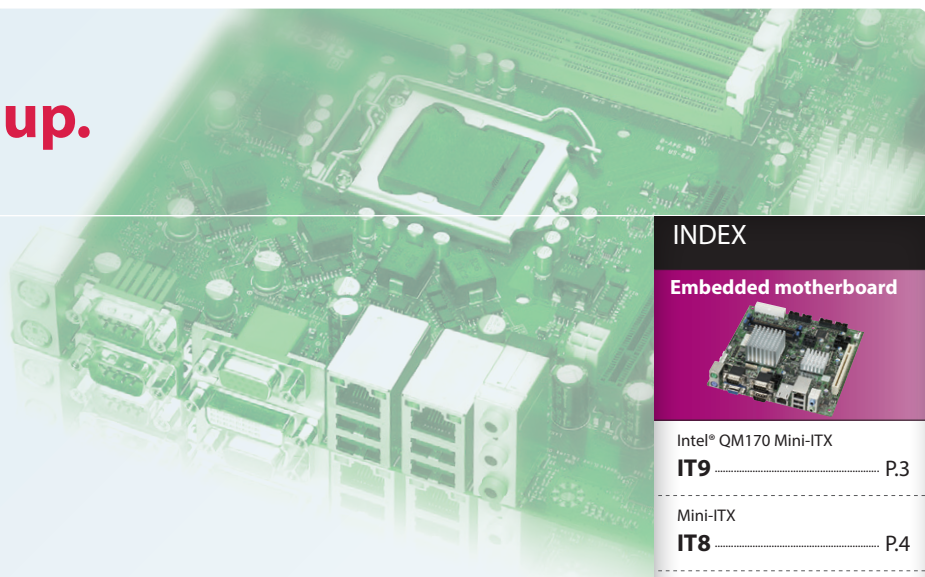
- Selection of advanced and high-quality parts using an electronic part certified database
- IoT (Intel® Internet of Things Solutions Alliance) member for providing quick support for the latest Intel technology
- Delivering eco-friendly products as a top environmental management manufacturer
- Detailed support by engineers



Supply

- Using the capabilities of the Ricoh Group supply network, we promise to provide products for at least 5 years from the launch and provide access to our extensive support.
- We will carefully study our customer needs for proposing high cost-performance solutions.

ties of the Ricoh Group.



Customize

Application development examples

Flexible custom development to meet your request

- System integration
- BIOS customization
- Dedicated system design including the external appearance
- Customized motherboard design



INDEX

Embedded motherboard



Intel® QM170 Mini-ITX

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Mini-ITX

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ARM SBC

AB1 P.8

ARM SBC

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Embedded touchpanel computer



9-inch touchpanel computer

FP1 P.9

10.4-inch touchpanel computer

NP-F10R-8I/FP-F10R-2B ... P.10

12.1-inch touchpanel computer

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15-inch touchpanel computer

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21.5-inch touchpanel computer

IP-21C-19M P.13

Embedded controllers



Compact size with Mini-ITX motherboard IT7D

iC Series P.14

Mini-tower for high versatility

FC Series P.15

Mid-tower for high scalability

FD Series P.15

Slim tower for environments with limited space

FS Series P.16

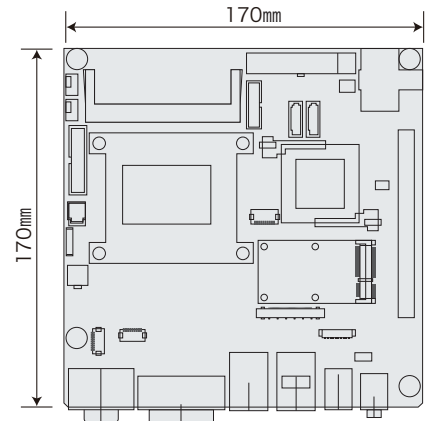
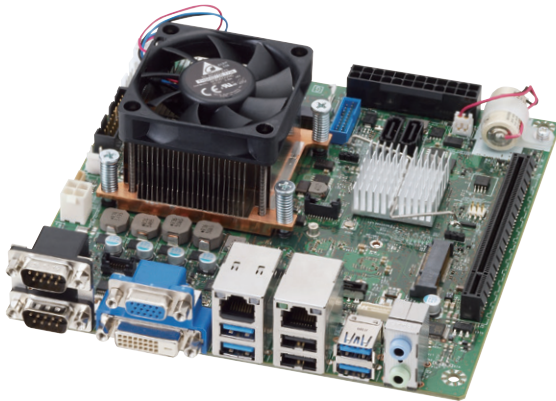
95mm-width slim tower

FT Series P.16

IT9

3-Year
Warranty

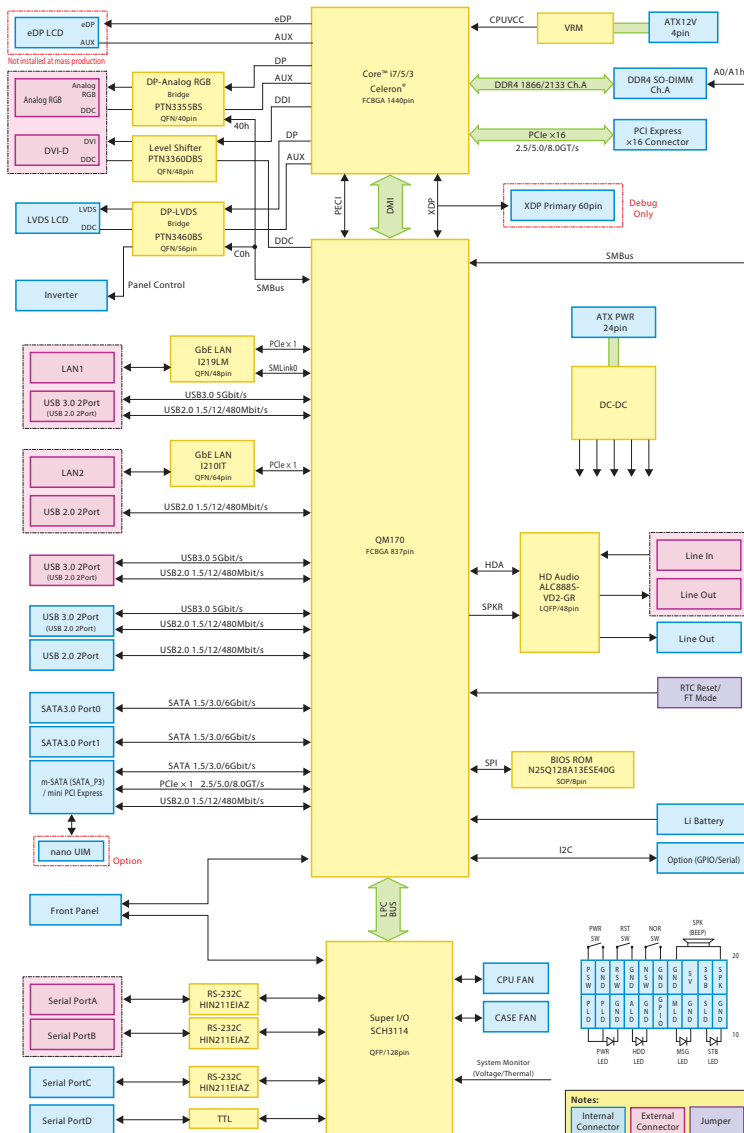
Intel® Core™ i7 Processors/
Intel® Core™ i5 Processors/
Intel® Core™ i3 Processors/
Intel® Celeron® Processors
With Intel® QM170 chipset



Main Features

- Equipped with Intel® QM170 chipset.
Supports 6th-generation Intel® Core™ i7/Core™ i5/Core™ i3/
Celeron®.
High performance and low energy consumption are achieved by
14nm process.
- Equipped with PCI Express x16slot (Gen3) and supports high-
speed I/O cards.
- Mini-PCIe/mSATA slot is provided to enable support for onboard
storage.
- Can be optionally equipped with a nanoUIM-card slot to support
3G/LTE communications cards.

Block Diagram



IT9 Product Specifications

CPU	Supported CPU	Intel® Core™ i7 6820EQ (2.8GHz) Intel® Core™ i5 6440EQ (2.7GHz) Intel® Core™ i3 6100E (2.7GHz) Intel® Celeron® G3900E (2.4GHz)
	Socket type	Mounted directly (BGA)
Chipset	PCH	Intel® QM170
	Supported chip	DDR4-1866/2133
Memory	ECC	Unsupported
	Non-ECC	Supported
	No. of sockets	1socket (SO-DIMM)
	Access method	Single access
	Max. capacity	16GB
External interface	USB	4ports (USB3.0) 2ports (USB2.0)
	Graphics	2ports (Analog RGB, DVI-D)
	Serial	2ports
	Network	2ports (10BASE-T/100BASE-TX/1000BASE-T)
	Audio	Line-IN, Line-OUT
Internal interface	PCI Express x 16slot	1slot
	MiniPCIe/mSATA	1slot (USB 2.0 & nanoUIM-card supported) However, nanoUIM-card slot is optional.
	Serial ATA connector	2ports
	USB header	2ports (USB3.0) 2ports (USB2.0)
	Serial header	1port (RS-232C), 1port (TTL)
	Fan connector	2ports
	LVDS header	1port
	LCD backlight	1port
	Audio header	Line-OUT
	Power requirement	ATX (24pin)
System monitoring function		Voltage, temperature, fan speed
		Watch Dog Timer
BIOS		Insyde
OS		Windows® Embedded 8.1 Pro (64bit)
		Windows® Embedded 8.1 Industry (64bit)
		Windows® 7 Ultimate for Embedded Systems (32bit/64bit)
		Windows® 7 Professional for Embedded Systems (32bit/64bit)
		Windows® Embedded Standard 7 (32bit/64bit)
		Windows10 (64bit)
Form factor		Mini-ITX (170mm x 170mm)
Operating temperature		0 °C-60 °C

Model List

Model	Specifications
IT9 — L2S — C1327 — 4GM	GbE x 2, Audio, Intel® Core™ i3 6100E

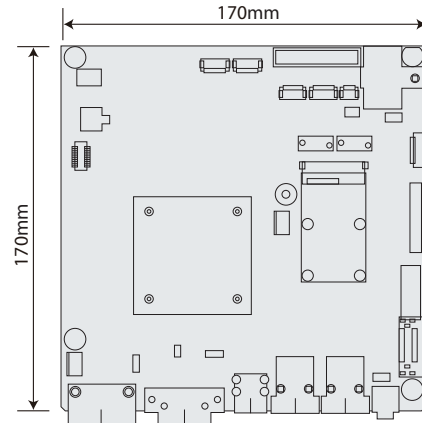
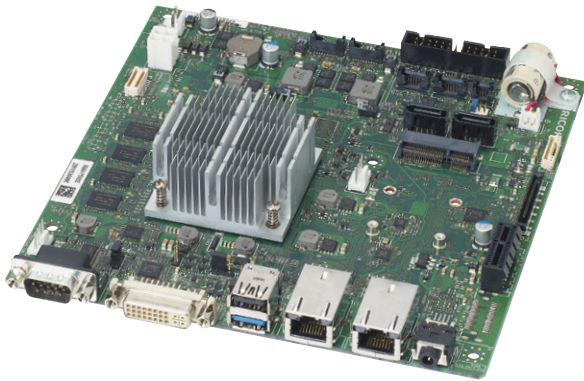
Notes:
Internal Connector
External Connector
Jumper

Embedded Mini-ITX Motherboard

IT8

3-Year
Warranty

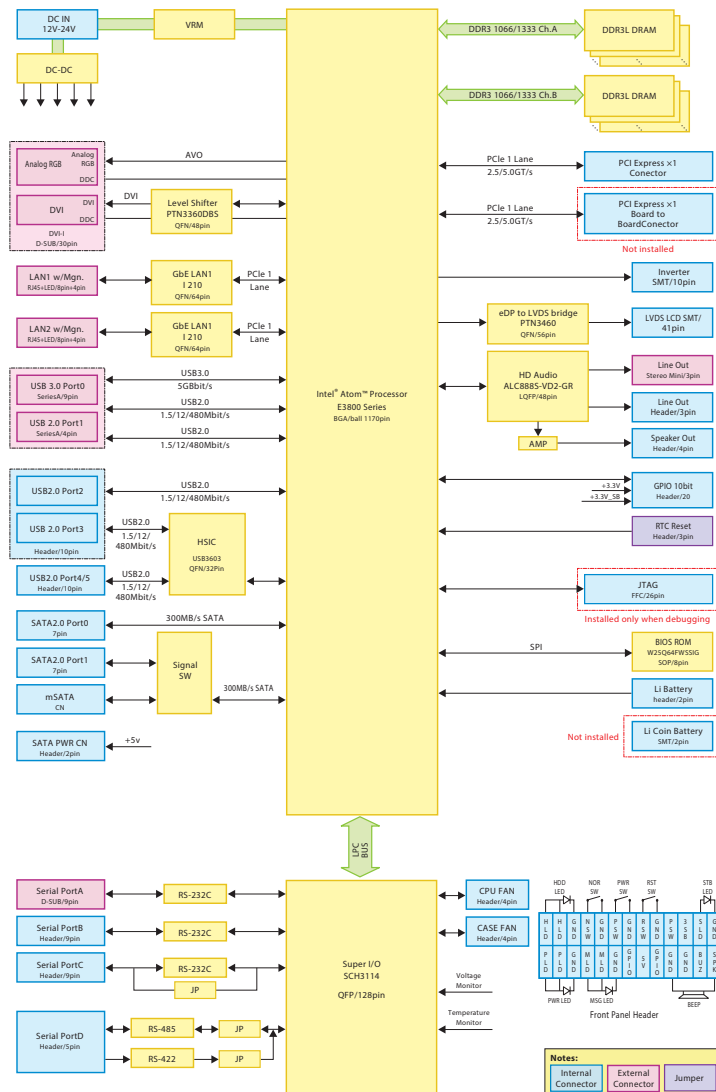
Intel® Atom™ Processor E3845/
Intel® Atom™ Processor E3827/
Intel® Atom™ Processor E3826/
Intel® Atom™ Processor E3825/
Intel® Atom™ Processor E3815



Main Features

- Intel® Atom™ Processors (Quad Core enabled) for delivering fast performance with low power requirements.
- Onboard memory for meeting strict vibration protection requirements.
(Vibration protection: 2G (19.6m/s²))
- Supports CPU TDP (thermal design power) 10W components or less for eliminating the need for a fan in the design, which enables a longer service life.
- Supports a wide range of DC voltage requirements.

Block Diagram



IT8 Product Specifications

CPU	Supported CPU	Intel® Atom™ Processor E3845 (1.91GHz) Intel® Atom™ Processor E3827 (1.75GHz) Intel® Atom™ Processor E3826 (1.46GHz) Intel® Atom™ Processor E3825 (1.33GHz) Intel® Atom™ Processor E3815 (1.46GHz)
	Socket type	Mounted directly (BGA)
Memory	Supported chip	DDR3L-1066/1333 (onboard)
	ECC	Unsupported
	Non-ECC	Supported
	No. of sockets	—
Access method	Access method	Dual access/Single access
	Max. capacity	Dual access: 8GB, 4GB Single access: 4GB
	Max. capacity	Dual access: 8GB, 4GB Single access: 4GB
External interface	USB	1port (USB 3.0) 1port (USB 2.0)
	Graphics	1port (DVI-I)
	Serial	1port
	Network	2ports (10BASE-T/100BASE-TX/1000BASE-T)
Internal interface	Audio	Line-OUT
	PCI Express × 1 slot	1slot
	Serial ATA connector	2ports (1port is shared with mSATA)
	USB header	4ports (USB 2.0)
System monitoring function	Serial header	3ports (including 1 RS422/485 port)
	Audio header	Line-OUT (Stereo)
	LVDS header	1port
	Fan connector	CPU, CASE
BIOS	mSATA	1port
	GPIO	10bit
OS	SATA Power	1port
	Power requirement	DC 12-24V
Form factor	System monitoring function	Voltage, temperature, fan speed Watch Dog Timer
	BIOS	Phoenix®
Operating temperature	OS	Windows® 7 Ultimate for Embedded Systems Windows® 7 Professional for Embedded Systems
	Form factor	Mini-ITX (170mm × 170mm)
Model List	Operating temperature	0°C-55°C
	Model	Specifications
	IT8 — L2S — A14D	GbE × 2, Audio, Intel® Atom™ E3826

Model List

Model	Specifications
IT8 — L2S — A14D	GbE × 2, Audio, Intel® Atom™ E3826

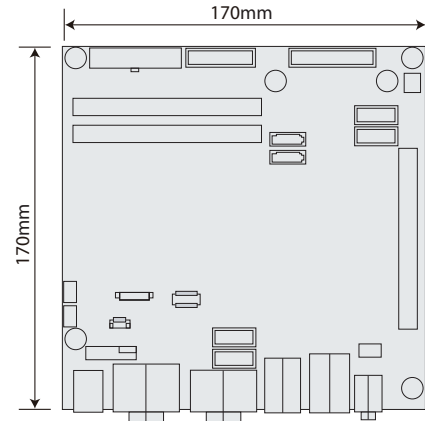
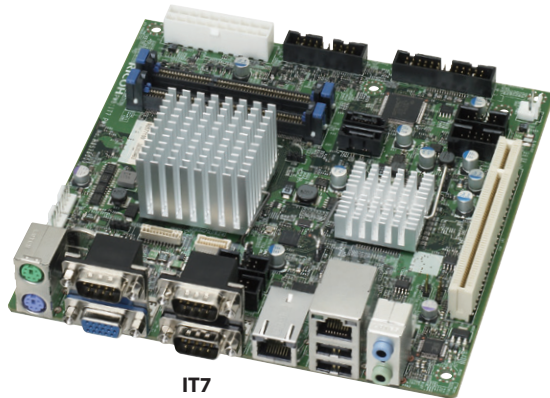
Embedded
motherboard
IT8

Embedded touchpanel
computer

Embedded
controller

IT7/IT7D

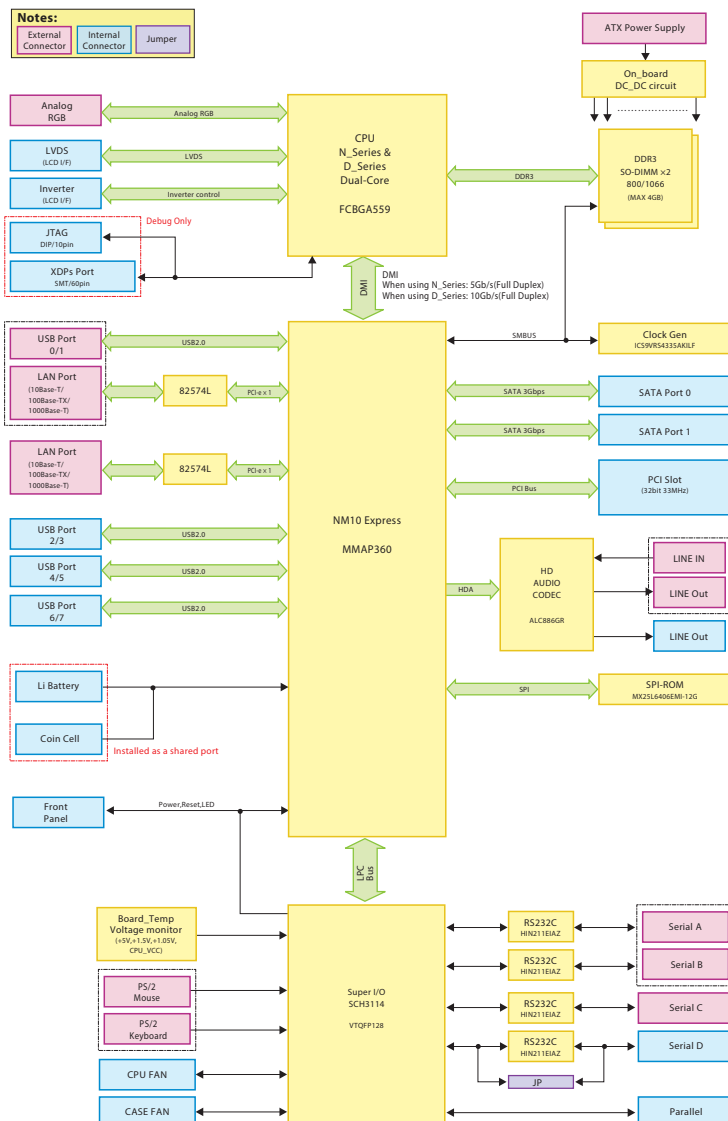
**Intel® Atom™ Processor N2600/
Intel® Atom™ Processor N2800/
Intel® Atom™ Processor D2550
With Intel® NM10 Express chipset**



Main Features

- Low-power design based on Intel® Atom™ processors. Chips designed using 32nm process for delivering faster graphics and application performance.
- Intel® NM10 chipset+ Atom™ CPU for a CPU fanless design with low heat generation.
- Includes ATX power input (IT7) and DC single input (IT7D).
- CF board (PATA interface) support is also available upon request.

Block Diagram



IT7/IT7D Product Specifications

CPU	Supported CPU	Intel® Atom™ Processor N2600 (1.60GHz) Intel® Atom™ Processor N2800 (1.86GHz) Intel® Atom™ Processor D2550 (1.86GHz)
	Socket type	Mounted directly (BGA)
Memory	Supported chip	DDR3-1066 (DDR3-800 when N2600 installed)
	Registered/Unbuffered	Unbuffered
	ECC	Unsupported
	Non-ECC	Supported
	No. of sockets	IT7: 2sockets / IT7D: 1socket
	Access method	Single access
Chipset	Max. capacity	4GB (2GB when N2600 installed)
	PCH	Intel® NM10
	USB	2ports
	Graphics	1port (analog RGB)
	Serial	3ports
External interface	PS/2	Keyboard, mouse
	Network	2ports (10BASE-T/100BASE-TX/1000BASE-T)
	Audio	Line-IN, Line-OUT (Stereo MiniJack)
	PCI slot	1slot (Supports up to 2-slot riser card)
Internal interface	Serial ATA connector	2ports
	USB header	IT7: 6ports (3connectors) / IT7D: 4ports (2connectors)
	Serial header	1port
	Parallel header	IT7: Option (1port) / IT7D: None
	Audio header	Line-OUT
	LVDS header	1port
	Fan connector	CPU, CASE
	Backlight control	1port
	Input voltage	IT7: ATX (20-pin)/IT7D: DC+ 12V
	System monitoring function	Voltage, temperature, fan speed
BIOS	Watch Dog Timer	
	Phoenix®	
OS (32-bit version)	Windows® 7 Ultimate for Embedded Systems	
	Windows® 7 Professional for Embedded Systems	
	Windows® XP Professional for Embedded Systems	
	Windows® Embedded Standard 2009	
	Windows® Embedded Standard 7	
Form factor	Mini-ITX (170mm x 170mm)	
	Operating temperature	0-55 °C

Model List: IT7

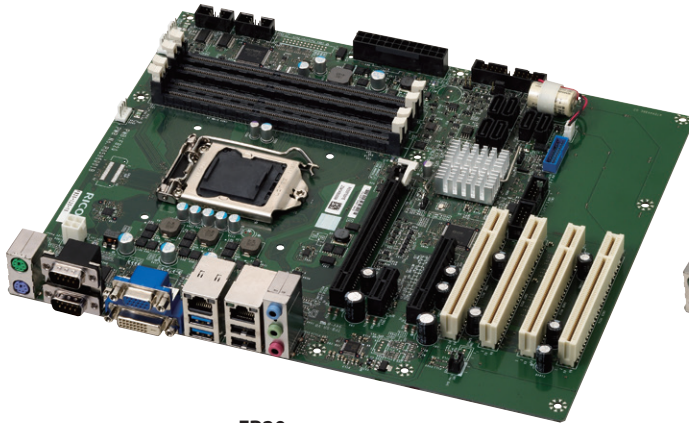
Model	Specifications
IT7-L2S — A16 — 2GM	GbE x 2, Audio, Intel® Atom™ N2600
IT7-L2S — A18 — 2GM	GbE x 2, Audio, Intel® Atom™ N2800
IT7-L2S — A18D — 2GM	GbE x 2, Audio, Intel® Atom™ D2550

Model List: IT7D

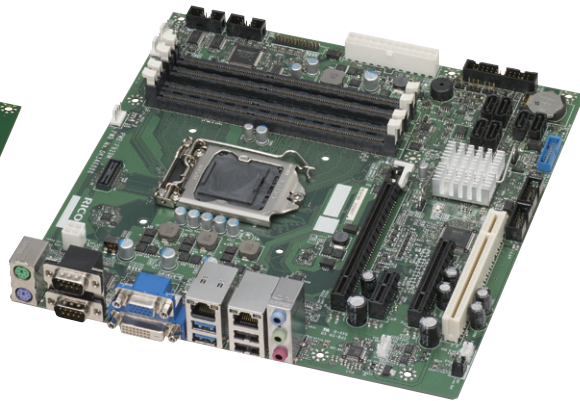
Model	Specifications
IT7D-L2S — A16 — 2GM	GbE x 2, Audio, Intel® Atom™ N2600
IT7D-L2S — A18 — 2GM	GbE x 2, Audio, Intel® Atom™ N2800
IT7D-L2S — A18D — 2GM	GbE x 2, Audio, Intel® Atom™ D2550

FB20 3-Year Warranty / **FB20M** 3-Year Warranty

**Intel® Core™ i7 Processors/
Intel® Core™ i5 Processors/
Intel® Core™ i3 Processors
With Intel® Q87 chipset**



FB20

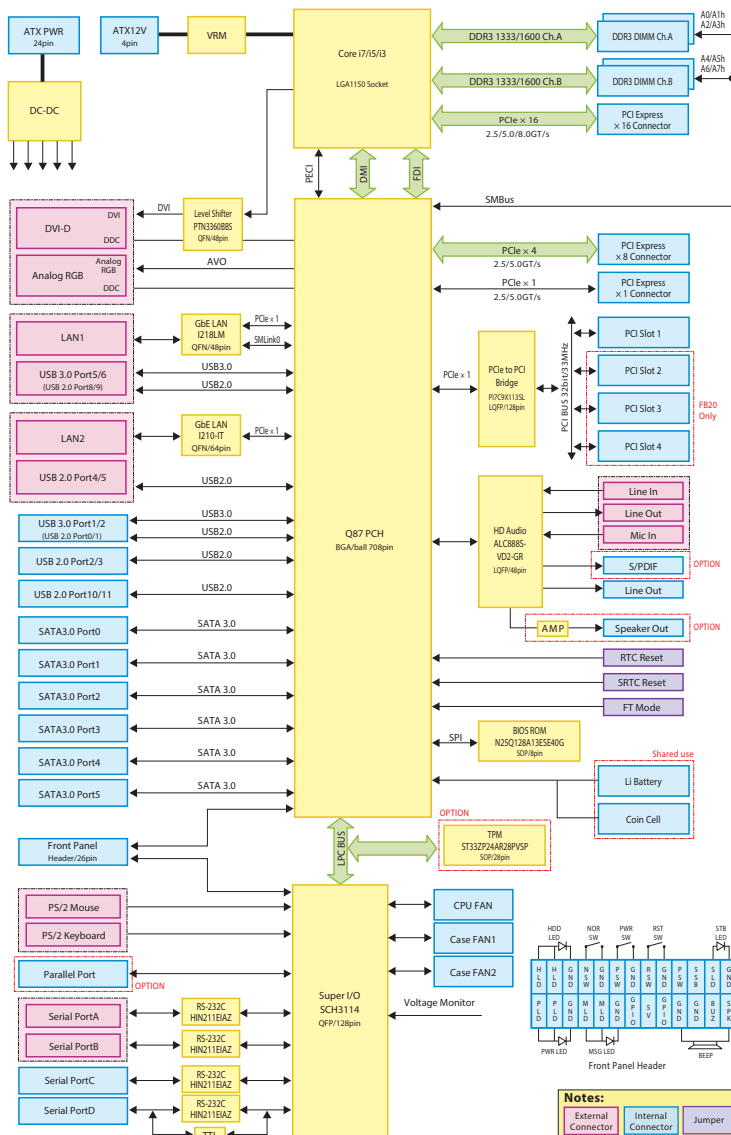


FB20M *The photo shows the model with 4 installed sockets.

Main Features

- Intel® Q87 for support of 22nm desktop CPUs.
- Memory supports capacity up to 32GB. (FB20)
- Conventional PCI slots provided by FB20M (Micro ATX) (1 slot) and FB20 (ATX) (4 slots).
- Also includes 2 external and 2 internal serial ports.

Block Diagram



FB20/FB20M Product Specifications

CPU	Supported CPU ^{*4}	Intel® Core™ i7 Processors Intel® Core™ i5 Processors Intel® Core™ i3 Processors
Memory	Socket type	LGA1150
	Supported chip	DDR3-1333/1600
	ECC	Unsupported
	Non-ECC	Supported
	No. of sockets	FB20: 4 sockets / FB20M: 2 sockets ^{*2}
Chipset	Max. capacity	FB20: 32GB / FB20M: 16GB ^{*3}
	PCH	Intel® Q87
	USB	2ports (USB3.0) 2ports (USB2.0)
	Graphics	2ports (analog RGB, DVI-D)
	Serial	2ports
External interface	PS/2	Keyboard, mouse
	Network	2ports (10BASE-T/100BASE-TX/1000BASE-T)
	Audio	Line-IN, Line-OUT, Mic-IN (Also supports 5.1ch function)
	PCI slot	FB20: 4slots / FB20M: 1slot
	PCI Express × 1slot	1slot
Internal interface	PCI Express × 4slot	1slot (physical shape is × 8)
	PCI Express × 16slot	1slot
	Serial ATA connector	6ports (SATA3.0)
	USB header	2ports (USB3.0) 4ports (USB2.0)
	Serial header	2ports
Option	Audio header	Line-OUT
	S/PDIF	1 port (option)
	Fan connector	CPU, CASE1, CASE2
	Audio header	Speaker-OUT
	Parallel header	1port
System monitoring function		Voltage, temperature, fan speed Watch Dog Timer
BIOS		Insyde®
OS ^{*4}		Windows® 8.1 Industry/Pro (32bit/64bit) Windows® 7 Ultimate/Professional (32bit/64bit)
Form factor		FB20: ATX (294.6mm × 241.4mm)
		FB20M: Micro ATX (238mm × 241.4mm)

Model List: FB20

Model	Specifications
FB20-L2S	GbE × 2, Audio

Model List: FB20M

Model	Specifications
FB20M-L2S	GbE × 2, Audio

*1 Please inquire separately for details about the CPU lineup.

*2 The FM20M can support 4-socket models.

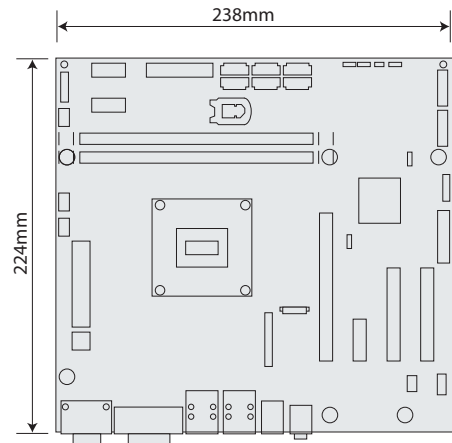
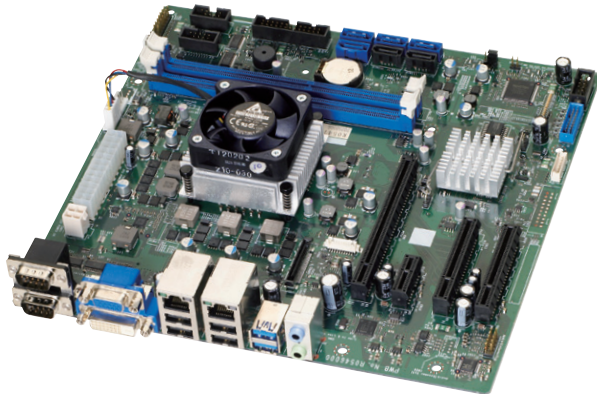
*3 FB20M: The 4-socket model has a maximum capacity of 32GB.

*4 Please inquire for details about orders that require development in Windows® Embedded Standard.

Contact information is provided on the back cover.

FB19M

Intel® Core™ i7 Processors/Intel® Core™ i5 Processors/
Intel® Core™ i3 Processors/Intel® Celeron® Processors
With Intel® HM76 Express chipset



Main Features

● Mobile Intel® HM76 Express chipset.

Supports the 22nm mobile CPU 3rd generation Intel® Core™ i7/
Core™ i5/Core™ i3/Celeron®. 3D transistor structure enables a
high-speed, low-power, and high-density design.

● Supports installation of Quad Core CPUs.

● CPU integrated high-performance graphics.

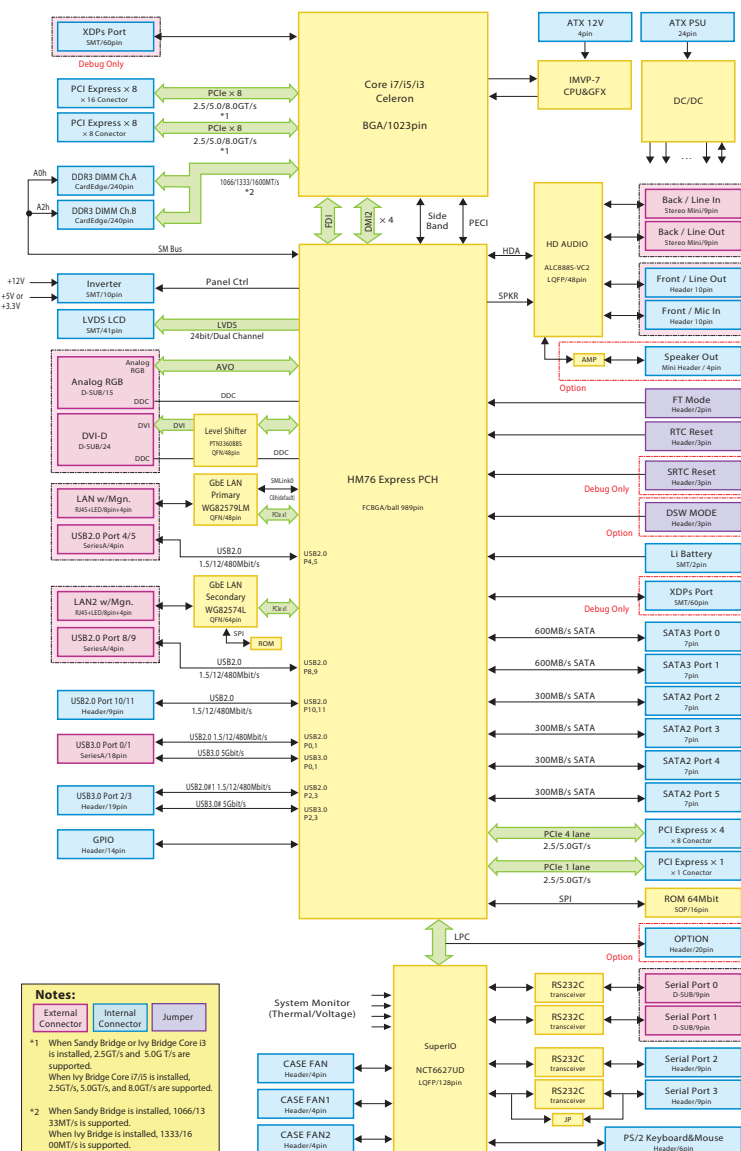
Includes hardware encoder and decoder for HD content.

● Diverse range of high-speed interfaces.

Two PCI Express × 8 slots.

USB 3.0 compatible.

Block Diagram



FB19M Product Specifications

CPU	Supported CPU ^{*1}	Intel® Core™ i7 Processors Intel® Core™ i5 Processors Intel® Core™ i3 Processors Intel® Celeron® Processors
	Socket type	Mounted directly (BGA)
Memory	Supported chip	DDR3-1066/1333/1600
	ECC	Supported
	Non-ECC	Supported
	No. of sockets	2sockets/DIMM
Chipset	PCH	Intel® HM76
	External interface	USB 2ports (USB3.0) 4ports (USB2.0)
Internal interface	Graphics	2ports (analog RGB, DVI-D)
	Serial	2ports
	Network	2ports (10BASE-T/100BASE-TX/1000BASE-T)
	Audio	Line-IN, Line-OUT
	PCI Express × 1slot	1slot
System monitoring function	PCI Express × 4slot	1slot (physical shape is × 8)
	PCI Express × 8slot	2slots (including 1slot where physical shape is × 16)
	Serial ATA connector	2ports (SATA3) 4ports (SATA2)
	USB header	2ports (USB3.0) 2ports (USB2.0)
	Serial header	2ports
BIOS	Audio header	Line-OUT, Mic-IN
	Fan connector	CPU, CASE1, CASE2
OS ^{*2}	LVDS header	1port
	PS/2 header	2ports (keyboard, mouse)
Form factor	System monitoring	Voltage, temperature, fan speed Watch Dog Timer
	BIOS	Phoenix®
Model List	OS ^{*2}	Windows® Embedded Standard 2009 Windows® 7 Ultimate/Professional
	Form factor	Micro ATX (238mm × 224.8mm)

Model List

Model	Specifications
FB19M-L25-C16	GbE × 2, Audio, Intel® Celeron® B810E

*1 Please inquire separately for details about the CPU lineup.

*2 We also accept orders that require development in Windows® Embedded Standard.

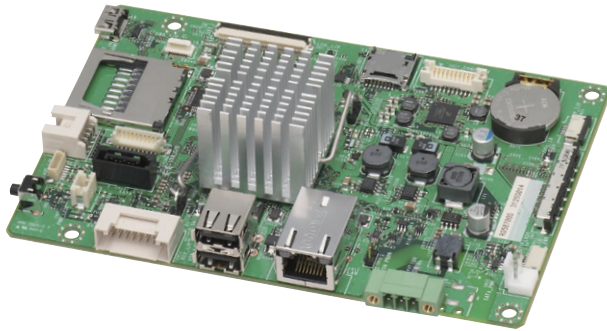
Please inquire for details.

Contact information is provided on the back cover.

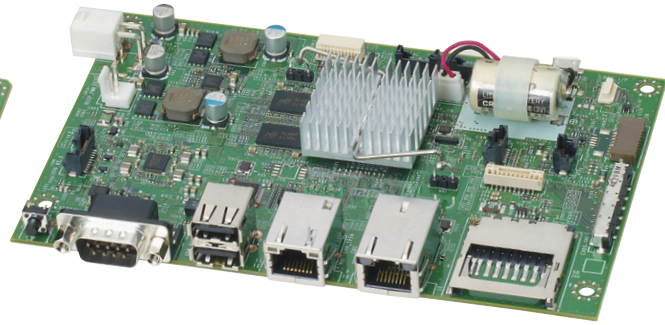
AB1/AB2

3-Year
Warranty

NXP™ ARM® i.MX6 Quad/
NXP™ ARM® i.MX6 Dual/
NXP™ ARM® i.MX6 Solo



AB1



AB2

Main Features

- NXP™ ARM® i.MX6 series.
- Onboard DDR3 533MHz 1GB DRAM.
- You can select the OS from Windows®, Android™, or Linux® to match your specific requirements.
- Includes SD card slot. (OS startup is possible.)
- Vibration protection: 2G (AB2)

Model List: AB1

Model	Specifications
AB1-Q	NXP™ ARM® i.MX6 Quad
AB1-S	NXP™ ARM® i.MX6 Solo

Model List: AB2

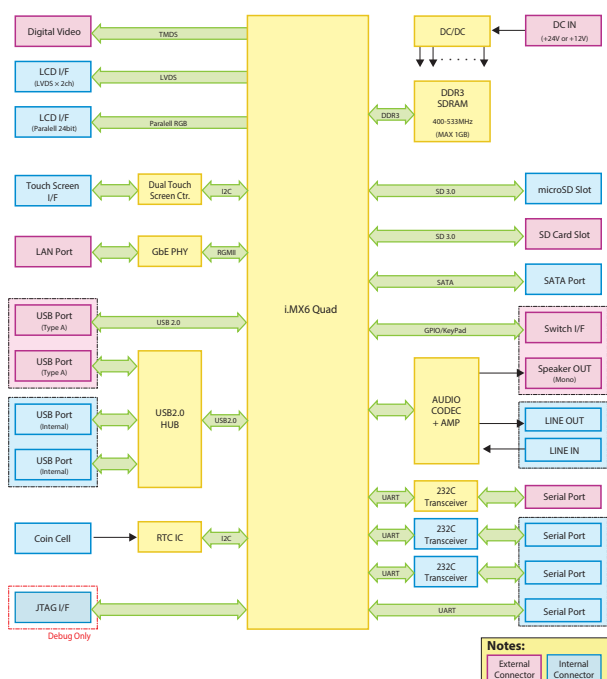
Model	Specifications
AB2-Q	NXP™ ARM® i.MX6 Quad
AB2-D	NXP™ ARM® i.MX6 Dual

*For this product, a development kit is sold separately for software development. Please inquire for details. Contact information is provided on the back cover.

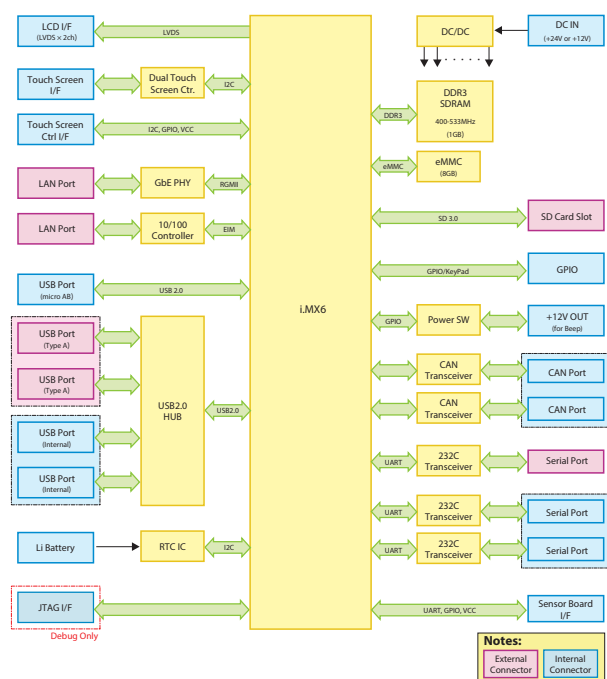
AB1/AB2 Product Specifications

Product Name		AB1	AB2
CPU	Supported CPU	NXP™ ARM® i.MX6	
	Socket type	Mounted directly	
Memory	Supported chip	DDR3 533MHz	
	Max. capacity	1GB *512MB for Solo only	1GB
External interface	USB	USB2.0: 2ports	
	Serial	1port	
	Audio	Speaker OUT (monaural)	—
	Power SW	Yes	
	Network	GbE: 1port	GbE: 1port, MbE: 1port
	Graphics	Digital Video	—
	SD card slot	1slot	
Internal interface	SATA	SATA2.0: 1port (*Solo not supported)	—
	LVDS header	2ch	
	Power LED	Yes	
	Parallel LCD	1ch	—
	No. of backlight connectors	1	
	Audio	Line-OUT, Line-IN (stereo)	—
	Serial	3 ports (including one TTL port)	2ports
	USB	USB 2.0: 3 ports (including one micro AB port)	
	Touchpanel	1ch	
	microSD card slot	1slot	—
Input voltage		DC12V/DC24V	
	Form factor	150mm × 100mm	160mm × 100mm
	OS	Windows® Embedded Compact 7 Android™ 4.2.2 Linux® 3.0.35	Linux® 3.14.52

AB1 Block Diagram



AB2 Block Diagram



9-inch

NXP™ ARM® i.MX6



Front view



Rear view

Main Features

- **Light-load input touchpanel (resistive touchscreen)**
Uses resistive touchscreen to enable operation even while wearing gloves, providing the same ease of operation as capacitive touchscreens (smartphones and tablets).

- **Dual touch**
Allows pinch-in, pinch-out, and flicking operations.
- **Supported OS are Windows® Embedded Compact 7, Android™ 4.2.2, and Linux® 3.0.35.**

9-inch touchpanel computers Product Specifications

Product Name		FP1
Installation board		AB1
Display unit	Screen size	9-inch widescreen
	Resolution	800 × 480
	Max. no. of display colors	16.77 million
	Backlight type	LED
	Brightness	300cd/m² (Typ)
OS		Windows® Embedded Compact 7 Android™ Linux®
CPU		NXP™ ARM® i.MX6 (Quad/Solo)
Memory		DDR3-533 (onboard)
Storage		SD card/microSD card
Touchpanel	Type	4-wire resistive touchscreen, Light-load input type
	Simultaneous no. of inputs	2
Interface	Serial	1port
	Network	1port
	USB	2ports
	Audio	—
	Graphics	Digital Video
	GPIO	10bit
Rated voltage		DC12V/24V
Operating temperature		0 °C-50 °C
Operating humidity		30% to 85% (no condensation)
Protection against dust, dripping, and oils		IP65f (front panel only)
Vibration protection		0.25G
Dimensions (W × D × H)		250mm × 48mm × 170mm
VESA standards		75mm × 75mm
Weight		1.3kg
Color		Black

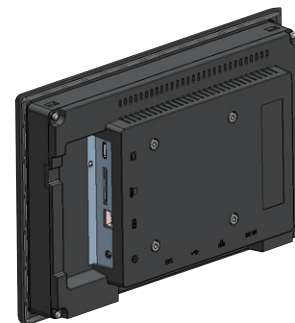
Model List

Model	Specifications
FP1-QW400	Windows® Embedded Compact 7 (Quad)
FP1-SW400	Windows® Embedded Compact 7 (Solo)

*For this product, a development kit is sold separately for software development. Please inquire for details. Contact information is provided on the back cover.



Bottom view



Rear view



Rear view

10.4-inch

NXP™ ARM® i.MX6
Intel® Atom™ Processor



Front view



Rear view

Main Features

- Board to install can be selected according to use.
- Meets vibration protection requirements by using onboard memory.
- Flush surface

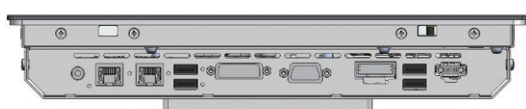
10.4-inch touchpanel computers Product Specifications

Product Name		NP-F10R-8I	FP-F10R-2B
Installation board		IT8-L2S	AB2
Display unit	Screen size	10.4-inch	
	Resolution	1,024 × 768	
	Max. no. of display colors	16.77 million	
	Backlight type	LED	
		600cd/m ² (Typ)	
OS		Windows® 7 Ultimate/Professional for Embedded System	Linux®
CPU		Intel® Atom™ Processor E3800 series	i.MX6 (Quad/Dual) Cortex®-A9
Memory		DDR3-1600/1033 (mounted directly) 4GB	DDR3-533 (mounted directly) 1GB
Storage		Onboard storage: mSATA 16GB Built-in: 2.5-inch bay × 1	Onboard storage: eMMC 8GB Built-in: 2.5-inch bay × 1
Touchpanel	Type	Resistive touch	
	Simultaneous no. of inputs	2	
Interface	Serial	1port	
	Network	2ports (10BASE-T/100BASE-TX/1000BASE-T)	2ports (10BASE-T/100BASE-TX/1000BASE-T) 1port (10BASE-T/100BASE-TX)
	USB	4ports	
	Audio	Line-OUT	—
	Graphics	DVI-I	—
	GPIO	8bit	
Rated voltage		DC12V-24V	
Operating temperature		0 °C-50 °C	
Operating humidity		30% to 80% (no condensation)	
Protection against dust, dripping, and oils		IP65F (front panel only)	
Vibration protection		2G	
Dimensions (W × D × H)		302mm × 57mm × 23.5mm	
VESA standards		100mm × 100mm	
Weight		3.2kg	3.0kg
Color		Black	

Model List

Model	Specifications	Model	Specifications
NP-F10R-8I-400	Windows® Embedded Standard 7P	FP-F10R-2B-400	Linux® 3.14.52 Yocto 1.8

*For this product, a development kit is sold separately for software development. Please inquire for details. Contact information is provided on the back cover.



Rear view (NP-F10R-8I)



Rear view (FP-F10R-2B)

12.1-inch

Intel® Atom™ Processor



Front view



Rear view

Main Features

- Board to install can be selected according to use.
- Meets vibration protection requirements by using onboard memory.

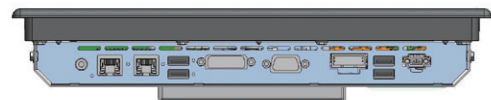
● Bezel type

12.1-inch touchpanel computers Product Specifications

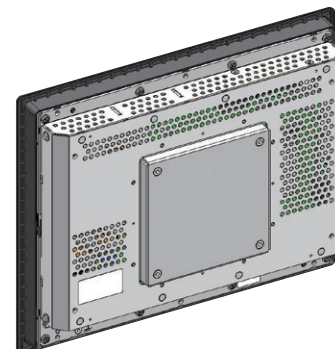
Product Name		NP-12R-8I
Installation board		IT8-L2S
Display unit	Screen size	12.1-inch
	Resolution	1,024 × 768
	Max. no. of display colors	16.77 million
	Backlight type	LED
	Brightness	450cd/m ² (Typ)
OS		Windows® 7 Ultimate/Professional for Embedded System
CPU		Intel® Atom™ Processor E3800 series
Memory		DDR3-1600/1033 (mounted directly) 4GB
Storage		Onboard storage: mSATA 16GB
		Built-in: 2.5-inch bay × 1
Touchpanel	Type	Resistive touch
	Simultaneous no. of inputs	2
Interface	Serial	1port
	Network	2ports
	USB	4ports
	Audio	Line-OUT
	Graphics	DVI-I
	GPIO	8bit
Rated voltage		DC12V-24V
Operating temperature		0 °C-50 °C
Operating humidity		30% to 80% (no condensation)
Protection against dust, dripping, and oils		IP65f (front panel only)
Vibration protection		2G
Dimensions (W × D × H)		310mm × 60mm × 250mm
VESA standards		100mm × 100mm
Weight		3.0kg
Color		Black

Model List

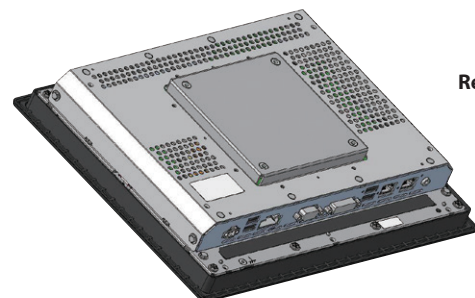
Model	Specifications
NP-12R-8I-400	Windows® Embedded Standard 7P



Bottom view



Rear view



Rear view

15-inch

NXP™ ARM® i.MX6
Intel® Atom™ Processor



Front view



Rear view

Main Features

- Meets vibration protection requirements by using on board memory.
- IP65 waterproof and dustproof protection (front panel only)
- Light-load input touchpanel
Uses resistive touchscreen to enable operation even while wearing gloves.
- Supports multi-touch for providing the same ease of operation as smartphones and tablets.

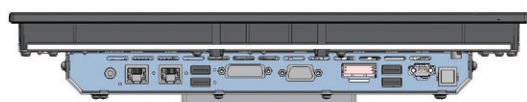
15-inch touchpanel computers Product Specifications

Product Name		NP-15R-81	FP-15R-2B
Installation board		IT8-L2S	AB2
Display unit	Screen size	15-inch	
	Resolution	1,024 × 768	
	Max. no. of display colors	16.19 million	
	Backlight type	LED	
		350cd/m ² (Typ)	
OS		Windows® 7 Ultimate/Professional for Embedded System	Windows® Embedded Compact 7 Linux®
CPU		Intel® Atom™ Processor E3800 series	i.MX6 (Quad/Dual) Cortex-A9
Memory		DDR3-1600/1033 (mounted directly) 4GB	DDR3-533 (mounted directly) 1GB
Storage		Onboard storage: mSATA 16GB Built-in: 2.5-inch bay × 1	Onboard storage: eMMC 8GB Built-in: 2.5-inch bay × 1
Touchpanel	Type	Resistive touch	
	Simultaneous no. of inputs	2	
Interface	Serial	1port	
	Network	2ports	
	USB	4ports	4ports
	Audio	Line-OUT	—
	Graphics	DVI-I	—
	GPIO	8bit	
Rated voltage		DC12V-24V	
Operating temperature		0 °C-50 °C	
Operating humidity		30% to 85% (no condensation)	
Protection against dust, dripping, and oils		IP65 (front panel only)	
Vibration protection		2G	
Dimensions (W × D × H)		362mm × 60mm × 290mm	361mm × 56.1mm × 281mm
VESA standards		100mm × 100mm	
Weight		3.7kg	3.5kg
Color		Black	

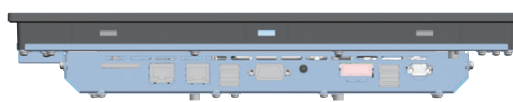
Model List

Model	Specifications	Model	Specifications
NP-15R-81-400	Windows® Embedded Standard 7P	FP-15R-2B-400	Windows® Embedded Compact 7 (Quad)

*For this product, a development kit is sold separately for software development. Please inquire for details. Contact information is provided on the back cover.



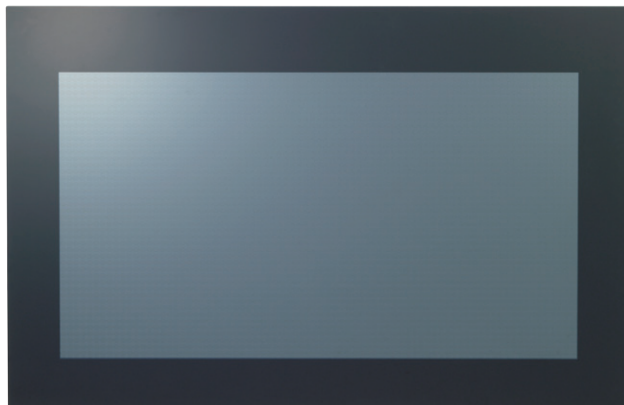
Rear view (FP-15R-2B)



Rear view (NP-15R-81)

21.5-inch

Intel® Core™ i Processor



Front view



Rear view

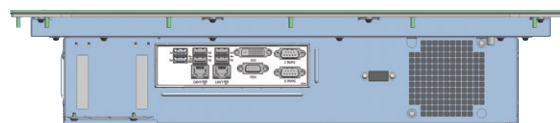
Main Features

- 21.5-inch/Full HD large-screen capacitive touchpanel
- Combined with high-performance CPU for providing a comfortable operating environment

- Flush surface

21.5-inch touchpanel computers Product Specifications

Product Name		IP-21C-19M
Installation board		FB19M
Display unit	Screen size	21.5-inch
	Resolution	1,920 × 1,080
	Max. no. of display colors	16.77 million
	Backlight type	LED
	Brightness	300cd/m ² (Typ)
OS		Windows® 7 Ultimate/Professional for Embedded System
CPU		Intel® Core™ i5 3610ME
Memory		DDR3-1066/1333/1600
Storage		2.5-inch HDD or SSD
Touchpanel	Type	Projected capacitive touchscreen
	Simultaneous no. of inputs	2
Interface	Serial	2ports
	Network	2ports
	USB	6 ports (including two USB 3.0 ports)
	Audio	Line-IN, Line-OUT
	Graphics	Analog RGB, DVI-I
	GPIO	—
Rated voltage		DC24V
Operating temperature		0 °C-50 °C
Operating humidity		30% to 80% (no condensation)
Protection against dust, dripping, and oils		IP54 (front panel only)
Vibration protection		0.5G
Dimensions (W × D × H)		575mm × 116.1mm × 380mm
VESA standards		—
Weight		9.1kg
Color		Black



Bottom view

iC Series

Compact, low-power embedded controller with front access



PCI 1slot model



PCI 2slot model

Main Features

- Ricoh Mini-ITX motherboard supporting low-power Intel® Intel® Atom™ series processors enables a compact design.
- Single DC power drive unit
Because operation is performed by DC power input, the DC power in the customer's system can be used for reducing costs.

*Please inquire for details.

- CF, CFast, HDD, or SSD can be selected as the boot device.
*Please inquire for details.
- PCI slots are provided for enabling expansion using general-purpose PCI cards. (iC6000/iC7000)
Expansion is enabled by PCI Express x1 card (iC8000)
- Front access
Main I/O ports are concentrated on the front panel for easy maintenance.

iC Series Product Specifications

Series name		iC6000	iC7000	iC8000
CPU	Supported CPU	Intel® Atom™ Processor N2600 Intel® Atom™ Processor N2800 Intel® Atom™ Processor D2550		Intel® Atom™ Processor E3845 Intel® Atom™ Processor E3827 Intel® Atom™ Processor E3826 Intel® Atom™ Processor E3825 Intel® Atom™ Processor E3815
	Socket type	Mounted directly (BGA)		
Chipset	PCH	Intel® NM10		—
Memory		DDR3-1066		DDR3L-1066/1333
		Maximum capacity: 4GB (2GB when N2600 installed)		Maximum capacity: 8GB (2GB when E3825 or E3815 installed)
Auxiliary storage device	Internal bay *1	2.5-inch HDD × 1 2.5-inch SSD × 1 CF × 1slot (Type I, True IDE) CFast × 1slot *3		2.5-inch HDD × 1 2.5-inch SSD × 1 CFast × 1slot *4
	Front bay *2	CF × 1slot (Type I, True IDE) CFast × 1slot *3		CFast × 1slot *4
	mSATA	—		Option
Interface	USB	4ports (2ports are a rear panel option)		4ports (2ports are a rear panel option)
	Serial	4ports (1 port is a rear panel option)		1 port (1 port is a rear panel option)
	Graphics	Analog RGB		DVI-I
	LVDS	1port (rear panel option)		
	Network	2ports (10BASE-T/100BASE-TX/1000BASE-T)		
	Audio	Line-IN, Line-OUT		Line-OUT
	PS/2	Keyboard, mouse		
Expansion slots		PCI 1slot	PCI 2slots	PCI Express×1 1slot
Switch/LED	Switch	Power, Reset		
	LED	Power, HDD		
Input voltage		DC12V/DC24V		DC12-24V
Operating temperature		5 ~ 40°C		
Dimensions		195mm × 227mm × 74mm	195mm × 227.8mm × 102.8mm	195mm × 227mm × 74mm
Supported OS		Windows® 7 Ultimate for Embedded Systems Windows® 7 Professional for Embedded Systems Windows® XP Professional for Embedded Systems Windows® Embedded Standard 2009 Windows® Embedded Standard 7		Windows® 10 IoT Enterprise Windows® 7 Ultimate for Embedded Systems Windows® 7 Professional for Embedded Systems

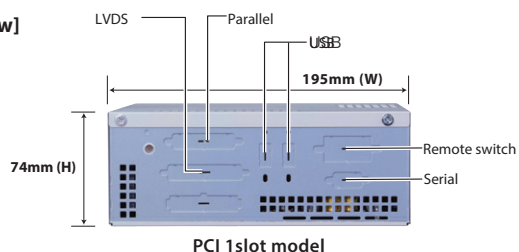
*1 One of these types can be selected (no installation can also be selected).

*2 No installation can also be selected.
Includes screw-lock plate cover.

*3 Please contact us if both bays will be used in a combination including CFast. Contact information is provided on the back cover.

*4 Can only be used on one of either the internal bay or front bay.

[Rear View]



PCI 1slot model



PCI 2slot model

FC Series

This embedded controller can be customized for a wide range of user needs. Despite being housed in a mini-tower case, this includes an ATX-size motherboard for providing high reliability and scalability.

Standard type



Dustproof type

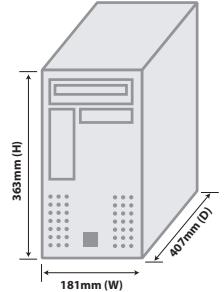


Mini-tower system for high versatility Embedded controller

Main Features

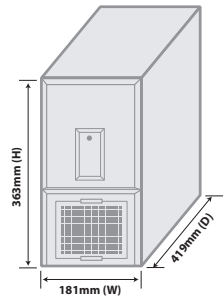
Standard type

- Main Board Size: ATX/Micro ATX
- Supported motherboards:
FB20/FB20M/FB19M/
FB17/FB17M
- Disk Drive Bays:
5.25-inch × 2, 3.5-inch × 1,
internal 3.5-inch × 2
- Dimensions:
181mm (W) × 407mm (D) × 363mm (H)



Dustproof type

- Main Board Size: ATX/Micro ATX
- Supported motherboards:
FB19M/FB17/FB17M
- Disk Drive Bays:
5.25-inch × 2, 3.5-inch × 2,
internal 3.5-inch × 2
- Dimensions:
181mm (W) × 419mm (D) × 363mm (H)



FD Series

Mid-tower system for high scalability Embedded controller



This controller delivers the first rate quality and high reliability required in embedded controllers. Combines with the motherboard for providing a high-scalability mid-tower system capable of deployment for a wide array of systems.

Main Features

- Main Board Size: ATX/Micro ATX
- Supported motherboards:
FB20/FB20M/FB19M/FB18/FB17/FB17M
- Disk Drive Bays:
5.25-inch × 4, 3.5-inch × 2, internal 3.5-inch × 3
- Dimensions:
178mm (W) × 450mm (D) × 444mm (H)
- When installed in the horizontal orientation, the three 5-inch bays in the top section can be rotated 90°.

Embedded controller

FS Series

Slim tower system for environments with limited space Embedded controller



Slim tower system for environments with limited space. Combines with a micro ATX size motherboard for providing a compact, high-reliability controller.

Main Features

- Main Board Size: Micro ATX
- Supported motherboards: FB20M/FB19M/FB17M
- Disk Drive Bays:
5.25-inch × 1, 3.5-inch × 1, internal 3.5-inch × 1
- Dimensions:
136mm (W) × 363mm (D) × 350mm (H) (not including protruding parts)

Embedded controller

FT Series

95mm-width slim tower system Embedded controller



Features a width of only 95mm. Slim tower system for environments with limited space. Combines with a micro ATX size motherboard for providing a compact-size controller with high reliability.

Main Features

- Main Board Size: Micro ATX
- Supported motherboards: FB20M/FB19M/FB17M
- Disk Drive Bays:
Slim DVD drive × 1, internal 2.5-inch × 2
- Dimensions:
95mm (W) × 374mm (D) × 325mm (H) (not including protruding parts)

Embedded
motherboard

Embedded touchpanel
computer

Embedded
controller

FS series | FT series

Ricoh's diverse lineup for selecting the optimum product

■ Embedded Motherboards

		Ricoh IT Series			Ricoh FB Series	
Product Name		IT9	IT8	IT7/IT7D	FB20/FB20M	FB19M
						
CPU	Generation	6th generation Intel® Core™ i series	Intel® Atom™	Intel® Atom™	4th generation Intel® Core™ i series	3rd generation Intel® Core™ i series
	Supported CPU	Core™ i7 (2.8GHz: 4-core) Core™ i5 (2.7GHz: 4-core) Core™ i3 (2.7GHz: 2-core) Celeron® (2.4GHz: 2-core)	E3845 (1.91GHz: 4-core) E3827 (1.75GHz: 2-core) E3826 (1.46GHz: 2-core) E3825 (1.33GHz: 2-core) E3815 (1.46GHz: 1-core)	N2600 (1.60GHz: 2-core) N2800 (1.86GHz: 2-core) D2550 (1.86GHz: 2-core)	Intel® Core™ i7 (3.2GHz: 4-core) Intel® Core™ i5 (3GHz: 4-core) Intel® Core™ i3 (3.1GHz: 2-core) *1	Intel® Core™ i7 (1.7/2.5GHz: 2-core) (2.1/2.3GHz: 4-core) Intel® Core™ i5 (2.7GHz: 2-core) Intel® Core™ i3 (1.6/2.4GHz: 2-core) Celeron® (1.0/1.6GHz: 2-core) *1
	Socket type	Mounted directly (BGA)	Mounted directly (BGA)	Mounted directly (BGA)	LGA1150	Mounted directly (BGA)
Memory	Supported chip	DDR4-1866/2133	DDR3L-1066/1333 (Onboard)	DDR3-1066 SO-DIMM	DDR3-1333/1600	DDR3-1066/1333/1600
	ECC	Unsupported	Unsupported	Unsupported	Unsupported	Supported
	Non-ECC	Supported	Supported	Supported	Supported	Supported
	No. of sockets	1socket	—	IT7: 2sockets IT7D: 1socket	FB20: 4sockets FB20M: 2sockets *2	2sockets
	Max. capacity	16GB	Dual access (8GB, 4GB) Single access (4GB)	4GB (2GB when N2600 installed)	FB20: 32GB FB20M: 16GB *2	16GB
Chip-set	PCH	Intel® QM170	—	Intel® NM10	Intel® Q87	Intel® HM76
External interface	USB	USB3.0: 4ports USB2.0: 2ports	USB3.0: 1port USB2.0: 1port	USB2.0: 2ports	USB3.0: 2ports USB2.0: 2ports	USB3.0: 2ports USB2.0: 4ports
	Graphics	2ports (analog RGB, DVI-D)	1port (DVI-I)	1port (analog RGB)	2ports (analog RGB, DVI-D)	2ports (analog RGB, DVI-D)
	Serial	2ports	1port	3ports	2ports	2ports
	PS/2	—	—	Keyboard, mouse	Keyboard, mouse	—
	Network	2ports	2ports	2ports	2ports	2ports
	Audio	Line-IN, Line-OUT	Line-OUT	Line-IN, Line-OUT (Stereo MiniJack)	Line-IN, Line-OUT, Mic-IN (Also supports 5.1ch function)	Line-IN, Line-OUT
Internal interface	PCI slot	—	—	1slot (Supports up to 2-slot riser card)	FB20: 4slots FB20M: 1slot	—
	PCI Express × 1 slot	—	1slot	—	1slot	1slot
	PCI Express × 4 slots	—	—	—	1 slot (physical shape is × 8)	1 slot (physical shape is × 8)
	PCI Express × 8 slot	—	—	—	—	2slots (including one slot where physical shape is × 16)
	PCI Express × 16 slot	1slot	—	—	1slot	—
	Serial ATA connector	2ports	2ports (1 port is shared with mSATA)	2ports	SATA3.0: 6ports	SATA3.0: 2ports SATA2.0: 4ports
	USB header	USB3.0: 2ports USB2.0: 2ports	USB2.0: 4ports	IT7: 6ports (3connectors) IT7D: 4ports (2connectors)	USB3.0: 2ports USB2.0: 4ports	USB3.0: 2ports USB2.0: 2ports
	Serial header	1port (RS-232C) 1port (TTL)	3ports (including one RS422/485 port)	1port	2ports	2ports
	Audio header	Line-OUT	Line-OUT	Line-OUT	Line-OUT	Line-OUT, Mic-IN
	LVDS header	1port	1port	1port	—	1port
Supported OS	Windows® 8.1 Industry	○ (64bit)	—	—	○ (32bit/64bit)	—
	Windows® 8.1 Professional	○ (64bit)	—	—	○ (32bit/64bit)	—
	Windows® 7 Ultimate	○ (32bit/64bit)	○ (32bit/64bit)	○ (32bit)	○ (32bit/64bit)	○ (32bit/64bit)
	Windows® 7 Professional	○ (32bit/64bit)	○ (32bit/64bit)	○ (32bit)	○ (32bit/64bit)	○ (32bit/64bit)
	Windows® XP Professional	—	—	○ (32bit)	—	—
	Windows® Embedded Standard 2009	—	—	○	—	○
	Windows® Embedded Standard 7	○ (32bit/64bit)	—	○	—	—
Form factor		Mini-ITX (170×170mm)	Mini-ITX (170×170mm)	Mini-ITX (170×170mm)	FB20: ATX (294.6×241.4mm) FB20M: Micro ATX (238×241.4mm)	Micro ATX (238×224.8mm)
Operating temperature		0 °C-60 °C	0 °C-55 °C	0 °C-55 °C	5 °C-50 °C	0 °C-50 °C
Operating humidity		20% to 80% (no condensation)	30% to 80% (no condensation)	30% to 80% (no condensation)	30% to 80% (no condensation)	30% to 80% (no condensation)

*1 Please inquire separately for details about the CPU lineup. *2 The FM20M can support 4-socket models. In this case, the maximum capacity is 32GB. *3 Please inquire separately for details about unsupported OS.

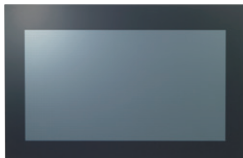
Product for your needs

* Designed and Produced in Japan

		RICOH AB Series	
Product Name		AB2	AB1
			
CPU	Supported CPU	NXP™ ARM® i.MX6 Quad/Dual	NXP™ ARM® i.MX6 Quad/Solo
	Socket type	Mounted directly	Mounted directly
Memory	Supported chip	DDR3-533 (onboard)	DDR3-533 (onboard)
	Max. capacity	1GB	1GB *Solo only 512MB
External interface	USB	USB2.0: 2ports	USB2.0: 2ports
	Graphics	—	Digital Video
	Serial	1port	1port
	Power switch interface	Yes	Yes
	Network	2ports (GbE × 1, MbE × 1)	1port (GbE × 1)
	Audio	—	Speaker OUT (monaural)
	SD card slot	1slot	1slot
	GPIO/Keypad	GPIO: 8bit	GPIO: 10bit
Internal interface	Serial ATA connector	—	SATA2.0: 1port (*Solo not supported)
	LVDS header	2ch	2ch
	PowerLED	Yes	Yes
	Parallel LCD	—	1ch
	No. of backlight connectors	1	1
	USB	USB2.0: 3ports (including one micro AB port)	USB2.0: 3ports (including one micro AB port)
	microSD slot	—	1slot
	Touchpanel	1ch	1ch
	Serial	2ports	3ports (including one TTL port)
	Audio	—	Line-OUT, Line-IN
	Other specifications	CAN: 2ch eMMC: 1ch(8GB)	—
PowerSW		1	1
Input voltage		DC12-24V	DC12V/24V
Form factor		160×100mm	150×100mm
Supported OS		Linux® 3.14.52	Windows® Embedded Compact 7 Android 4.2.2 Linux® 3.0.35
Operating temperature		0 °C-60 °C	0 °C-60 °C
Operating humidity		30%-85%	30%-85%

■ Embedded Touchpanel Computers

		9-inch	10.4-inch	
		FP series	NP series	FP series
Product Name		FP1	NP-F10R-8I	FP-F10R-2B
				
Mechanical	Dimensions (WxDxH)	250x48x170mm	302x57x232.5mm	302x57x232.5mm
	Weight	1.3kg	3.2kg	3.0kg
	Installation board	AB1	IT8	AB2
	VESA standards	75x75mm	100x100mm	100x100mm
	Input voltage	DC12V/24V	DC12V-24V	DC12V-24V
	Color	Black	Black	Black
	Display device	9-inch widescreen	10.4-inch	10.4-inch
	Resolution	800x480	1,024x768	1,024x768
	No. of display colors	16.77 million	16.77 million	16.77 million
	Backlight	LED backlight	LED backlight	LED backlight
	Brightness	300cd/m ² (Typ)	600cd/m ² (Typ)	600cd/m ² (Typ)
	Type	Resistive touch	Resistive touch	Resistive touch
	Simultaneous no. of inputs	2	2	2
Electrical	Switch	Power	Power	Power
	LED	Power	Power	Power
	Interfaces	AB1 specs	IT8 specs +USB 2ports GPIO 4bit (OUT)/4bit (IN)	AB2 specs +USB 2ports GPIO 8bit
	CPU	i.MX6 (Quad/Solo)	Intel® Atom™ Processor E3800 series	i.MX6 (Quad/Dual)
	Memory	DDR3-533 (onboard)	DDR3L-1333 (onboard)	DDR3-533 (onboard)
Software	Supported OS	Windows® Embedded Compact 7 Android Linux®	Windows® 7 Ultimate/Professional for Embedded System	Linux®
Operating conditions	Operating temperature	0 °C-50 °C	0 °C-50 °C	0 °C-50 °C
	Operating humidity	30% to 85% (no condensation)	30% to 80% (no condensation)	30% to 80% (no condensation)
	Protection against dust, dripping, and oils	IP65f (front panel only)	IP65 (front panel only)	IP65 (front panel only)
	Vibration protection	0.25G	2G	2G
Other	Accessories	Power connector (terminal block) Mounting fixture Protective sheet	Power connector (terminal block) Mounting fixture	Power connector (terminal block) Mounting fixture

12.1-inch	15-inch		21.5-inch
NP series	FP series	NP series	IP series
NP-12R-8I	FP-15R-2B	NP-15R-8I	IP-21C-19M
			
310×60×250mm	361×56.1×281mm	362×60×290mm	575×116.1×380mm
3.0kg	3.5kg	3.7kg	9.1kg
IT8	AB2	IT8	FB19M
100×100mm	100×100mm	100×100mm	—
DC12V-24V	DC12V-24V	DC12V-24V	DC24V
Black	Black	Black	Black
12.1-inch	15-inch	15-inch	21.5-inch widescreen
1,024×768	1,024×768	1,024×768	1,920×1,080
16.77 million	16.19 million	16.19 million	16.77 million
LED backlight	LED backlight	LED backlight	LED backlight
450cd/m ² (Typ)	350cd/m ² (Typ)	350cd/m ² (Typ)	300cd/m ² (Typ)
Resistive touch	Resistive touch	Resistive touch	Capacitive touchscreen
2	2	2	2
—	Power	Power	—
Power	Power	Power	—
IT8 specs +USB 2ports GPIO 4bit (OUT)/4bit (IN)	AB2 specs +USB 2ports GPIO 8bit	IT8 specs +USB 2ports GPIO 4bit (OUT)/4bit (IN)	FB19M specs
Intel® Atom™ Processor E3800 series	i.MX6 (Quad/Dual)	Intel® Atom™ Processor E3800 series	3rd generation Intel® Core™ i series
DDR3L-1333 (onboard)	DDR3-533 (onboard)	DDR3L-1333 (onboard)	DDR3-1066/1333/1600
Windows® 7 Ultimate/Professional	Windows® Embedded Compact 7 Linux®	Windows® Embedded Standard 7P	Windows® 7 Ultimate/Professional
0 °C-50 °C	0 °C-50 °C	0 °C-50 °C	0 °C-50 °C
30% to 80% (no condensation)	30% to 85% (no condensation)	30% to 80% (no condensation)	30% to 80% (no condensation)
IP65 (front panel only)	IP65 (front panel only)	IP65 (front panel only)	IP54 (front panel only)
2G	2G	2G	0.5G
Power connector (terminal block) Mounting fixture	Power connector (terminal block) Mounting fixture	Power connector (terminal block) Mounting fixture	Protective sheet

■ Embedded Controllers

	FC series		FD series	FS series	iC series		
Product Name	FC19400	FC20400	FD20400	FS9400	iC6400 iC6401	iC7400 iC7401	iC8400
					  iC6000 series iC7000 series		
Motherboard	FB19M-L2S	FB20-L2S	FB20-L2S	FB19M-L2S	IT7D-L2S		IT8-L2S
Chipset	Intel® HM76	Intel® Q87	Intel® Q87	Intel® HM76	Intel® NM10		—
CPU	Intel® Core™ i7 3615QE	Intel® Celeron® G1820	Intel® Core™ i7 4790S	Intel® Core™ i7 3615QE	iC6400/7400: Intel® Atom™ N2800 iC6401/7401: Intel® Atom™ N2600		Intel® Atom™ E3800 series
Graphics interface	Analog RGB DVI-D	Analog RGB DVI-D	Analog RGB DVI-D	Analog RGB DVI-D	Analog RGB		DVI-I
Expansion bays (No. of empty)	3.5inch (External) [2] 3.5inch (Internal) [1] 5inch [1]	3.5inch (External) [1] 3.5inch (Internal) [1] 5inch [1]	3.5inch (External) [2] 3.5inch (Internal) [2] 5inch [1]	—	—	—	—
Expansion slots (No. of empty)	PCI Express × 8 [2] PCI Express × 1 [1] PCI Express × 4 [1]	PCI Express × 16 [1] PCI Express × 1 [1] PCI Express × 4 [1]	PCI Express × 16 [1] PCI Express × 1 [1] PCI Express × 4 [1] PCI [4]	PCI Express × 8 [2] PCI Express × 1 [1] PCI Express × 4 [1]	PCI [1]	PCI [2]	PCI Express × 1 [1]
Storage	2.5inch SATA HDD 320GB 5inch SATA DVD SuperMulti drive	2.5inch SATA HDD 500GB *Supports 24 hour operation 5inch SATA DVD SuperMulti drive	2.5inch SATA HDD 500GB 5inch SATA DVD SuperMulti drive	2.5inch SATA HDD 320GB 5inch SATA DVD SuperMulti drive	2.5inch SATA HDD 320GB CF card slot (CF card not loaded)		2.5inch SATA HDD 320GB *1 Cfast card slot (Cfast card not loaded) *2 mSATA
Supported OS	Windows® 7 Professional for Embedded Systems						
Dimensions (WxDxH)	181×419×363mm	181×407×363mm	178×450×444mm	136×363×350mm	195×227×74mm	195×227.8×102.8mm	195×227×74mm
Input voltage	AC100V	AC100V	AC100V	AC100V	6400: DC12V 6401: DC24V	7400: DC12V 7401: DC24V	DC12V-24V

*1 Mutually exclusive with mSATA

*2 Mutually exclusive with HDD



Supply Period

	Product Name	Controller installed	Released	Discontinuation *2	End of maintenance support *3	Page
Embedded motherboard	IT9	*1	June 2016	End of May 2021	End of May 2028	3
	IT8	NP-F10R-8I, NP-12R-8I, NP-15R-8I	May 2015	End of April 2020	End of April 2027	4
	IT7	iC6000/7000	July 2013	End of September 2018	End of September 2025	5
	IT7D	iC6000/7000	October 2013	End of September 2018	End of September 2025	5
	FB20/FB20M	FD20000, FC20000, FT20000	September 2014	End of August 2019	End of August 2026	6
	FB19M	FC19000, IP-21C-19M	May 2012	End of December 2017	End of December 2024	7
	AB2	FP-F10R-2B, FP-15R-2B	December 2015	End of November 2020	End of November 2027	8
	AB1 (Quad)	FP1	May 2014	End of October 2019	End of October 2026	8
	AB1 (Solo)	FP1	November 2014	End of October 2019	End of October 2026	8

*1 Not yet determined. For details, please inquire with a dealer or a Ricoh sales contact.

*2, *3 For details and the latest information, please inquire with a Ricoh sales contact.

Lifecycle Policy

Ricoh explicitly promises a supply period of 5 years for our embedded units.

We believe that this will help customers plan part procurement and substitute/replacement part selection.

For details, please inquire with a dealer or a Ricoh sales contact.

Meeting customer demands with flexible custom development

- System upgrade
- BIOS customization
- Dedicated system engineering including external design
- Customized motherboard engineering

*Product names, appearance, specifications, and other details are subject to change without notice for incorporating improvements.
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Embedded motherboard

http://industry.ricoh.com/en/fbx_board/

Embedded controller

http://industry.ricoh.com/en/fbx_system/

●For inquiries or further information, please contact: