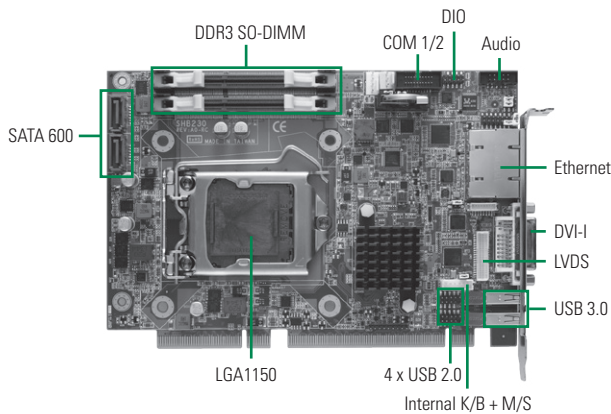


SHB230

LGA1150 4th Generation Intel® Core™ i7/ i5/i3 & Celeron® Processor PICMG 1.3
Half-size CPU Card with Intel® Q87 SATA3, USB 3.0, DVI-I/LVDS and Dual LANs



System

CPU	LGA1150 Socket for 4th Generation Intel® Core™ i7/i5/i3 & Celeron® Low Power DT processors (Haswell/Haswell Refresh), TDP up to 45W
System Memory	2 x 204-pin DDR3-1333/1600 SO-DIMM, max. up to 16 GB
Chipset	Intel® Q87
BIOS	AMI
SSD	1 x CFast™
Watchdog Timer	225 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 1 x PCIe x4 or 4 PCIe x1
Battery	Lithium 3v/220 mAh
Power Requirement	Intel® Core™ i7-4770TE@2.3 GHz, 8 GB DDR3 +5V@1.85A, +12V@2.3A, +5VSB@0.2A, +3.3V@1.5A
Size	185 x 126 mm
Board Thickness	1.6mm
Temperature	0°C ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, on-condensing

I/O

MIO	2 x RS-232/422/485 (COM1/2) 1 x PS2 Keyboard 1 x PS2 Mouse
RIO	2 x RJ-45, 2 x USB 3.0, 1 x DVI-I
SATA	2 x SATA-600, support RAID 0/1
Hardware Monitoring	Detect CPU/System temperature, voltage and support Smart Fan control
Ethernet	1st ports as 10/100/1000Mbps supports WOL, RPL/PXE Boot ROM with Intel® i217LM with AMT 9.0 support 2nd port as 10/100/1000Mbps supports WOL, RPL/PXE Boot ROM with Intel® i210AT
Audio	HD Codec audio as MIC-in/Line-in/ Line-out/Speaker-out with Realtek ALC662

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Features

- LGA1150 4th generation Intel® Core™ i7/i5/i3 and Celeron® processor (Haswell/Haswell Refresh)
- Intel® Q87 Chipset
- 2 DDR3-1333/1600 SO-DIMM support max. up to 16 GB
- Supports Dual Display (DVI-I and LVDS)
- Supports iAMT 9.0
- 2 SATA 6Gbs with RAID 0,1

Display

Chipset	Intel® HD Graphics
Memory Size	Intel® DVMT
Display Interface	1 x DVI-I connector 1 x LVDS 24-bit dual channel

Packing List

Standard

Quick installation guide, user's manual/utility CD, cable

Cable

Part Number	Description	Qty
59380000300E	COM x 2 w/bracket, P=1.27 x 2.54, L=300mm	1
593826A0000E	SATA signal cable 500 mm	1

Ordering Information

Standard

SHB230DGGA (P/N: E38C230100)	LGA1150 socket Intel® Core™ i7/i5/i3 PICMG 1.3 half-size CPU card with Intel® Q87, SATA3, USB 3.0, DVI-I, Dual GbE LANs and CFast™
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Optional

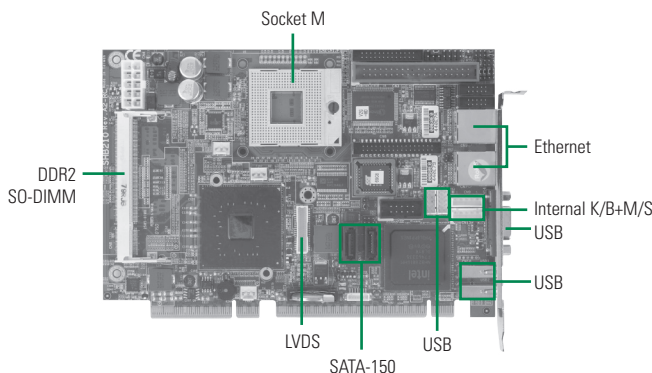
59384500100E	SBC84500 Audio Cable w/bracket, P=2.0 mm, L=450mm
594C2302500E	PS2 KEYBOARD_MOUSE CABLE, L=290mm
594C2303500E	DIO CABLE, L=150mm
594C2302800E	USB CABLE, L=190mm

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SHB210

Socket M Intel® Core™2 Duo & Celeron® M Processor PICMG 1.3 Half-size CPU Card with Intel® 945GME + ICH7M-DH, VGA/LVDS and Dual LANs



System

CPU	Socket M for Intel® Core™2 Duo/ Core™ Duo/ Core™ Solo/ Celeron® M processor with FSB 533/667 MHz
System Memory	2 x 200-pin SO-DIMM support DDR2-533/667 max. up to 4 GB
Chipset	Intel® 945GME + ICH7M-DH
BIOS	Phoenix-Award
SSD	1 x CompactFlash™ type-II
Watchdog Timer	255 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 graphics port supports for SDVO or PCIe x1 devices 4 x PCIe lanes support 1 x PCIe x4 or 4 x PCIe x1 I/O devices
Battery	Lithium 3V/196 mAH
Power Requirements	Intel® T7600 @2.33 GHz, 2 GB DDR2 +5V_SBY @ 21mA, +3.3V @ 916mA, +5V @ 112mA, +12V @ 2.332A, -12V @ 34mA
Size	185 x 126 mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Relative Humidity	10% ~ 95% relative humidity, non-condensing

I/O

MIO	1 x IDE; PATA-100 1 x FDD 1 x PS/2 keyboard 1 x PS/2 mouse 1 x LPT; with SPP/EPP/ECP supported 1 x RS-232 (COM 2) 1 x RS-232/422/485 (COM 1)
SATA	2 x SATA-150; with RAID Q/1
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support Wake-on-LAN, RPL/PXE Boot ROM with Realtek RTL8111B
Audio	HD Codec audio as MIC-in/Line-in/Line-out/speaker-out with audio kit AX93242 (optional)
USB	6 x USB 2.0
SMBus	N/A

Features

- Socket M for Intel® Core™2 Duo and Celeron® M Processor with 533/667 MHz
- 2 DDR2-533/665 SO-DIMM support up to 4 GB
- With Intel® GMA 950 integrated graphics controller for VGA and LVDS

Display

Chipset	Intel® GMA 950 graphics core
Memory Size	Intel® DVM T 3.0 compliant
Display Interface	1 x VGA 1 x LVDS; 18/24-bit single/dual channel

Packing List

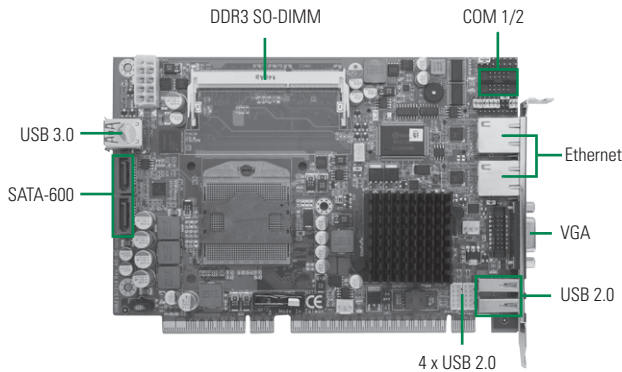
Standard		
Quick installation guide, user's manual/utility CD, cable		
Cable		
Part Number	Description	Qty
59384500000E	COM + Print cable w/ bracket	1
59382601000E	Ultra DMA66 IDE cable 40-pin 455 mm	1
59384500300E	FDD flat cable 2.54" to 2.0 pitch 320 mm	1
593826A0000E	SATA signal cable 500 mm	1
50784830200E	CPU heatsink with fan	1

Ordering Information

Standard	
SHB210VGG (P/N: E38C210100)	Socket M PICMG 1.3 half-size CPU card with VGA/LVDS, 2 GbE LAN and 6 USB
SHB210VG (P/N: E38C210101)	Socket M PICMG 1.3 half-size CPU card with VGA/LVDS, GbE LAN and 6 USB
Optional	
593836A00030E	4-pin power cable to SATA x 2, L=150 mm
59382631000E	2 x USB 2.0 wafer cable with bracket, L=180 mm
E393242101	AX93242-RC HD audio converter kit

SHB213

Socket G2 2nd Generation Intel® Core™ i7/i5/i3 & Celeron® Processor PICMG 1.3 Half-size CPU Card with Intel® HM65, VGA, SATA3, USB 3.0 and Dual LANs



System

CPU	Socket G2 (rPGA 988B) 2nd Generation Intel® Core™ i7/i5/i3 and Celeron® processor (Sandy Bridge)
System Memory	2 x 204-pin DDR3-1066/1333 SO-DIMM max. up to 8 GB
Chipset	Intel® HM65 chipset (Intel® QM67 as option)
BIOS	AMI UEFI BIOS
SSD	1 x CFast™
Watchdog Timer	225 levels, 1~255 sec.
Expansion Interface	1 x PCIe x16 1 x PCIe x4 or 4 x PCIe x1
Battery Lithium	3v/220 mAh
Power Requirements	Intel® Core™ i7-2710QE @ 2.1 GHz, 8 GB DDR3 (HM 65) -12V @ 1.9A, +5VSB @ 0.1A, +12V @ 1.8A, +3.3V @ 2.5A
Size	185 x 126mm
Board Thickness	1.6 mm
Temperature	0° ~ +60°C (32°F ~ 140°F), operation
Operation Humidity	10% ~ 95% relative humidity, on-condensing

I/O

MIO	1 x RS-232/422/485 (COM 1) 1 x RS-232 (COM 2)
SATA	2 x SATA-600 (straight, 180°, blue) Optional RAID 0/1 (only for Intel® QM67)
Hardware Monitoring	Detect CPU/System temperature, voltage and fan speed
Ethernet	2 ports as 10/100/1000Mbps support WOL, RPL/PXE boot ROM with Realtek RTL8111E.
Audio	N/A
USB	2 x USB 3.0 (right angle, 90°) 6 x USB 2.0 (4 x internal, 2 x external)
SMBus	System Management Bus for advanced monitoring/control

- Socket G2 (rPGA 988B) 2nd Generation Intel® Core™ i7/i5/i3 and Celeron® processor (Sandy Bridge)
- Intel® HM65 chipset (optional Intel® QM67)
- 2 DDR3-1066/1333 SO-DIMM support up to 8 GB memory capacity
- Supports Intel® HD graphics

Packing List

Standard		
Quick installation guide, user's manual/utility CD, cable		
Cable		
Part Number	Description	Qty
59384500200E	COM x 2 w/bracket, P=2.0 mm, L=250 mm	1
593826A0000E	SATA signal cable 500 mm	1

Ordering Information

Standard		
SHB213VGG-HM65 (P/N: E38C213101)	Socket G2 PICMG 1.3 half-size CPU card with HM65, VGA, SATA3, USB 3.0, 2 GbE LAN	
Optional		
59382631000E	2 x USB 2.0 wafer cable with bracket, L=180 mm	
5078C111200E	CPU cooler PGA 989 JACDD01C	
SHB213VGG-QM67 (P/N: E38C213100)	Socket G2 PICMG 1.3 half-size CPU card with QM67, VGA, SATA3, USB 3.0, 2 GbE LAN	

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