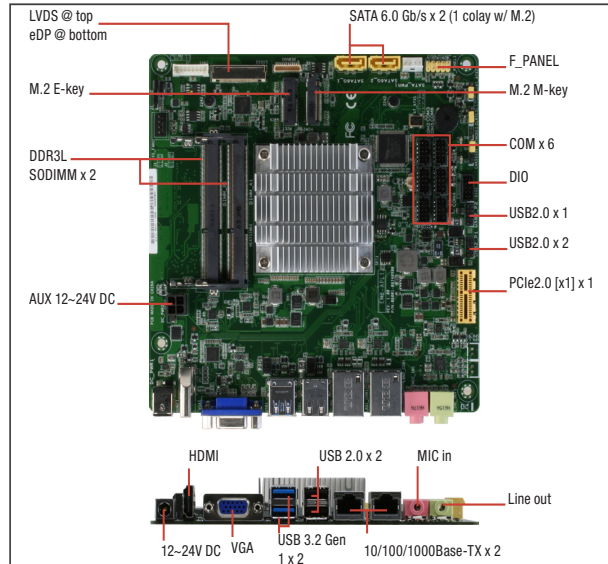


09 EMB-APL1

Mini-ITX Embedded Motherboard with Intel® N3350(DC)/N4200(QC) Processor

Industrial Motherboards



Features

- DDR3L 1866, Single Channel SODIMM x 2, Non-ECC (Max.8GB, up to 1600MHz)
- Three Independent Display: VGA x 1, HDMI x 1, LVDS/eDP x 1
- Realtek 8111H, Gigabit Ethernet x 2
- COM Port x 6 (RS-232 x 5, RS-232/422/485 x 1)
- M.2 Slot(M-key) x 1, M.2 Slot(E-key) x 1, PCIe2.0 [x1] x 1
- 12~24V DC Wide Range Voltage Power Input
- Low Profile



Audio I/O	Mic-in, Line-out
LAN I/O	RJ-45 x 2
Serial Port	—
PS/2 Port	—
Others	DC power jack x 1

Internal I/O Connectors

Storage	SATA 6.0Gb/s x 2(1 colay with M.2 M-key), M.2 M-key (22 x 42mm) x 1
USB	USB 2.0 headers support additional 3 USB ports (2*5-pin, p=2.00mm) x 2
Display I/O	40-pin LVDS/eDP connector x 1 (default LVDS)
Audio I/O	—
Serial Port	RS-232/422/485 x 1, RS-232 x 5
PS/2 Port	—
Parallel Port	—
DIO	8-bit x 1 (In/Out programmable)
FAN	4-pin Chassis Fan x 1
Power	—
Others	Front panel header x 1, Clear CMOS jumper x 1, AT/ATX mode select jumper (optional) x 1, SATA power connector x 1, M.2 E key (22 x 30mm) for PCIe x 1

OS

OS Support	Windows® 10 64bit, Ubuntu16.04.02/Kernel4.8.0
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Specifications

System	
Processor	N4200, (4C @ 2.50GHz CPU [Burst Mode], 750MHz GFX [Turbo], ~6W TDP) N3350, (2C @ 2.40GHz CPU [Burst Mode], 650MHz GFX [Turbo], ~6W TDP)
Chipset	Integrated into SoC
Memory	DDR3L 1866, Single Channel SODIMM x 2, Non-ECC (Max.8GB, up to 1600MHz)
I/O Chipset	NCT6116D
Ethernet	Realtek PCIe Gb LAN 8111H x 2
Audio	Realtek® ALC897
TPM	Nuvoton NPCT652ABCYX TPM2.0 (default: No)
Expansion Slots	PCIe2.0 [x1] x 1 M.2 M key (22 x 42mm) x 1, for SATA M.2 E Key (22 x 30mm) x 1, for PCIe
BIOS	128Mbit Flash ROM x 1, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program
Smart Fan Control	Chassis Fan (Fanless)
Wake On LAN/ PXE	Yes (WOL/PXE)
Power State	S3, S4, S5
Graphics	
Graphics Chipset	Intel® HD Graphics
Graphics Multi Display	Three Independent Display
VGA	Up to 1920 x 1200 @60Hz
DVI	—
HDMI	Up to 3840 x 2160 @ 30Hz
Display Port	—
LVDS	Up to 1920 x 1200 @60Hz, dual-channel 18/24 bit (via PS8625) (colay with eDP)
eDP	Up to 4096 x 2160 @60Hz
Backlight Control	Voltage/PWM
Environment & Power & ME	
Battery	Lithium battery
Power Requirement	12V~24V wide-range voltage input back panel DC jack x 1; 4-pin ATX Power connector x 1
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90% RH, non-condensing
Certificate	CE & FCC Class A
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
Weight	1.1 lb (0.5 Kg)
MTBF (Hours)	263,080
Rear Panel I/O Ports	
USB	USB 3.2 Gen 1 (5 Gbps) x 2, USB 2.0 x 2
Display I/O	HDMI x 1, VGA x 1

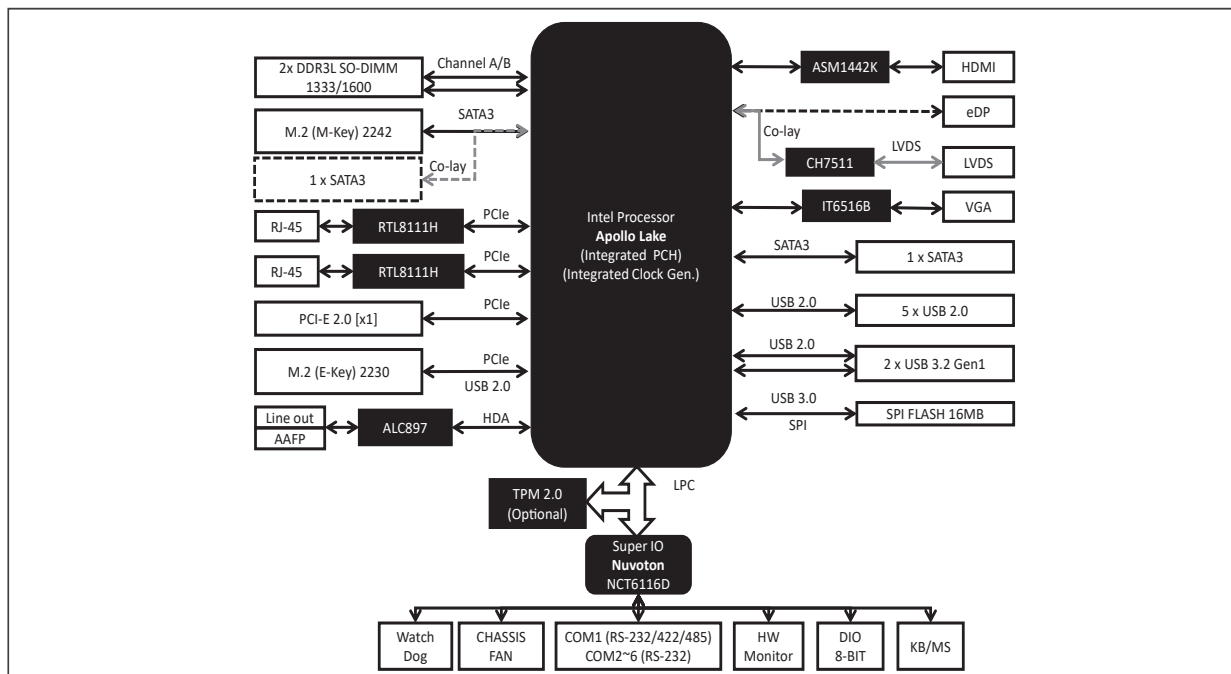
Packing List

- Heatsink
- I/O Shield
- EMB-APL1

Optional Accessories

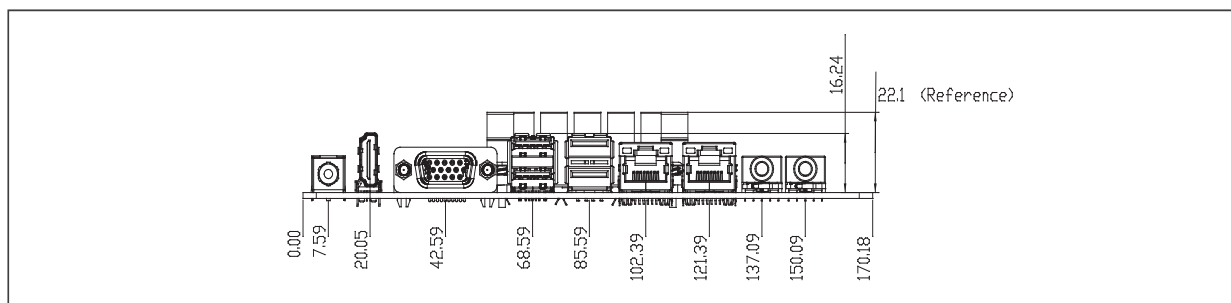
Part Number	Description
1709100201	USB 2.0 Cable (10P, 200MM, p=2.00mm, w/bracket)
1700100491	USB 2.0 Cable (2 x 5P, 490mm, p=2.00mm)
1709050201	USB 2.0 Cable (5P, 220mm, p=2.00mm)
1701100206	COM Cable (200MM, p=2.00mm)
1702150300	SATA Power Cable (4P, 300MM p=2.54mm)
125530060Z	Adapter.60W.180D.W/Lock.FSP060-DHAN3

Block Diagram



Dimension

Unit: mm



Order Information

Part Number	CPU	RAM	Fan/ Fanless	Display	Storage	LVDS	LAN	USB	RS-232	RS-232/422/485	Expansion Slot	Power	TPM	Temp.
EMB-APL1-A11-4200-LV	N4200	SODIMM x 2	Fanless	VGA, HDMI, LVDS	SATA3 x 1, M.2(M-key)	Dual Channel 18/24 bit	GbE x 2	USB2.0 x 5, USB 3.2 Gen 1 x 2	5	1	PCIe2.0[x1] x 1, M.2(M-key) x 1, M.2(E-Key) x 1	12V-24V DC	—	32°F ~140°F (0°C ~ 60°C)
EMB-APL1-A11-3350-LV	N3350	SODIMM x 2	Fanless	VGA, HDMI, LVDS	SATA3 x 1, M.2(M-key)	Dual Channel 18/24 bit	GbE x 2	USB2.0 x 5, USB 3.2 Gen 1 x 2	5	1	PCIe2.0[x1] x 1, M.2(M-key) x 1, M.2(E-Key) x 1	12V-24V DC	—	32°F ~140°F (0°C ~ 60°C)

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