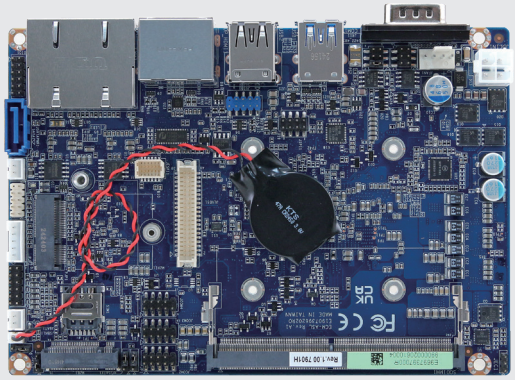
ECM-TWL

Intel® Processor N150, N250, & Intel® Core™ 3 Processor N355 3.5" Micro Module



Features

- Onboard Intel® Processor N150, N250, & Intel® Core™ 3 Processor N355
- Bottom Layer Soldered Processor
- Triple Display, DP 1.4a, HDMI 2.0b, 1 x 2CH LVDS/eDP
- Dual Intel® Gigabit Ethernet, 2.5GbE
- Dual Expansion Slot, M.2 Key-B, M.2 Key-E
- DC in +9V ~ +36V

HDMI | DP | DDR5 SO-DIMM | USB 3.2 | RS232/422/485

Specifications

System Information	
Processor	Onboard Intel® Processor N150, N250, & Intel® Core™ 3 Processor N355
System Memory	1 x 262-pin DDR5 4800MHz SO-DIMM socket, supports up to 16GB Max.
I/O Chipset	EC iTE IT5782VG
Watchdog Timer	H/W Reset, 1sec. ~ 65535sec and 1sec. or 1min./step
BIOS	AMI BIOS, 256Mbit SPI Flash ROM
H/W Status Monitor	CPU temperature monitoring Voltages monitoring CPU fan speed control
TPM	Onboard NuvoTon_NPCT760AABYX supports TPM 2.0
Board	3.5"
Expansion	
Expansion	1 x M.2 Key B slot for 3042/3052/2242 size (PCIe x1 + USB 3.2 GEN1 + USB 2.0) standard package with 3042 to 3052 bracket + screw set 1 x M.2 Key E 2230 support WiFi 7E module (1 x PCI-e x1 & USB 2.0 Signal)
Storage	
Storage	1 x M.2 (Key B) 1 x SATA III
Display	
Graphic Chipset	Intel® UHD Graphics
Spec. & Resolution	HDMI 2.0b Max resolution 4096 x 2160@60Hz DP 1.4a Max resolution 4096 x 2160@60Hz LVDS 1920 x 1080 Dual channel 18/24-bits or eDP 1920 x 1080 @60Hz (2 Lanes)
Multiple Display	Triple Display
LVDS	1 x LVDS: 1920 x 1080 Dual channel 18/24-bits LVDS
Audio	
Audio Codec	Realtek ALC888S HD Audio Decoding Controller
Audio Interface	Line-in, Mic-in, Line-out
Ethernet	
LAN Chipset	Line-in, Mic-in, Line-out
Ethernet Interface	10/100/1000/2.5G Base-Tx GbE compatible
LAN Port	2 x RJ-45

Power Requirement	
Power Mode	AT/ATX (Default Setting: AT)
Software Support	
OS	Windows 11, Linux
Certification	
Certification Information	CE, FCC, RoHS Compliant
I/O	
USB	3 x USB 3.2 Gen2, 1 x USB 2.0 at IO 2 x USB2.0 by Pin header
COM Port	3 x RS-232 1 x RS-232/422/485
SATA	1 x SATA III
DIO	1 x 8-bit GPIO
MIO	1 x eSPI 1 x SIM Card Slot
Mechanical & Environmental	
Operating Temp.	0°C ~ 60°C (32°F ~ 140°F) with 0.5m/s Air Flow
Storage Temp.	-40°C ~ 85°C (-40°F ~ 185°F)
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Weight	0.44lbs (0.2kg)
Power Requirement	DC in +9V ~ +36V
Dimension (L x W)	5.7" x 4" (146mm x 101mm)

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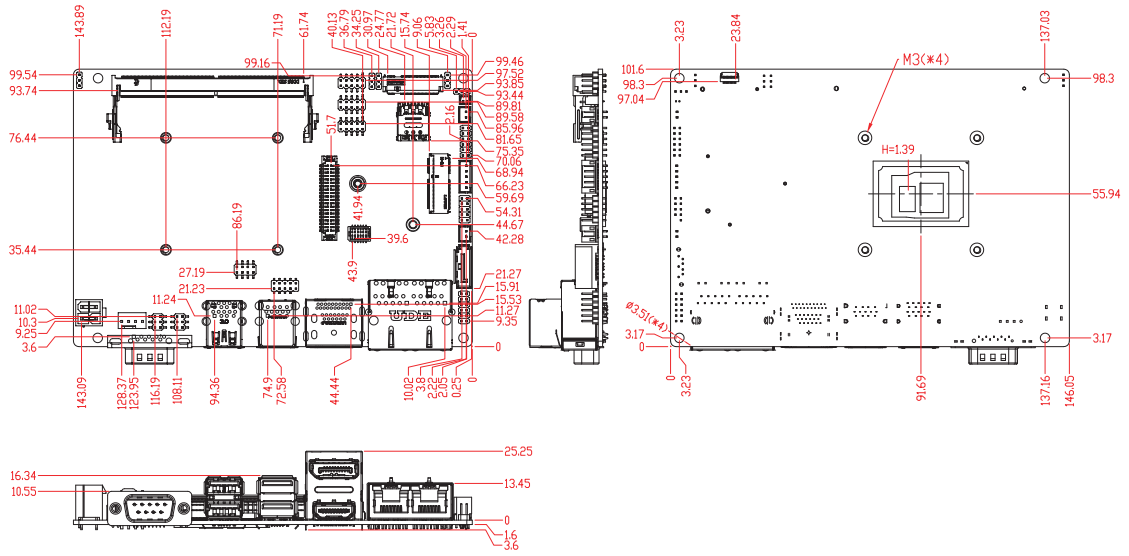
Mechanical Drawing



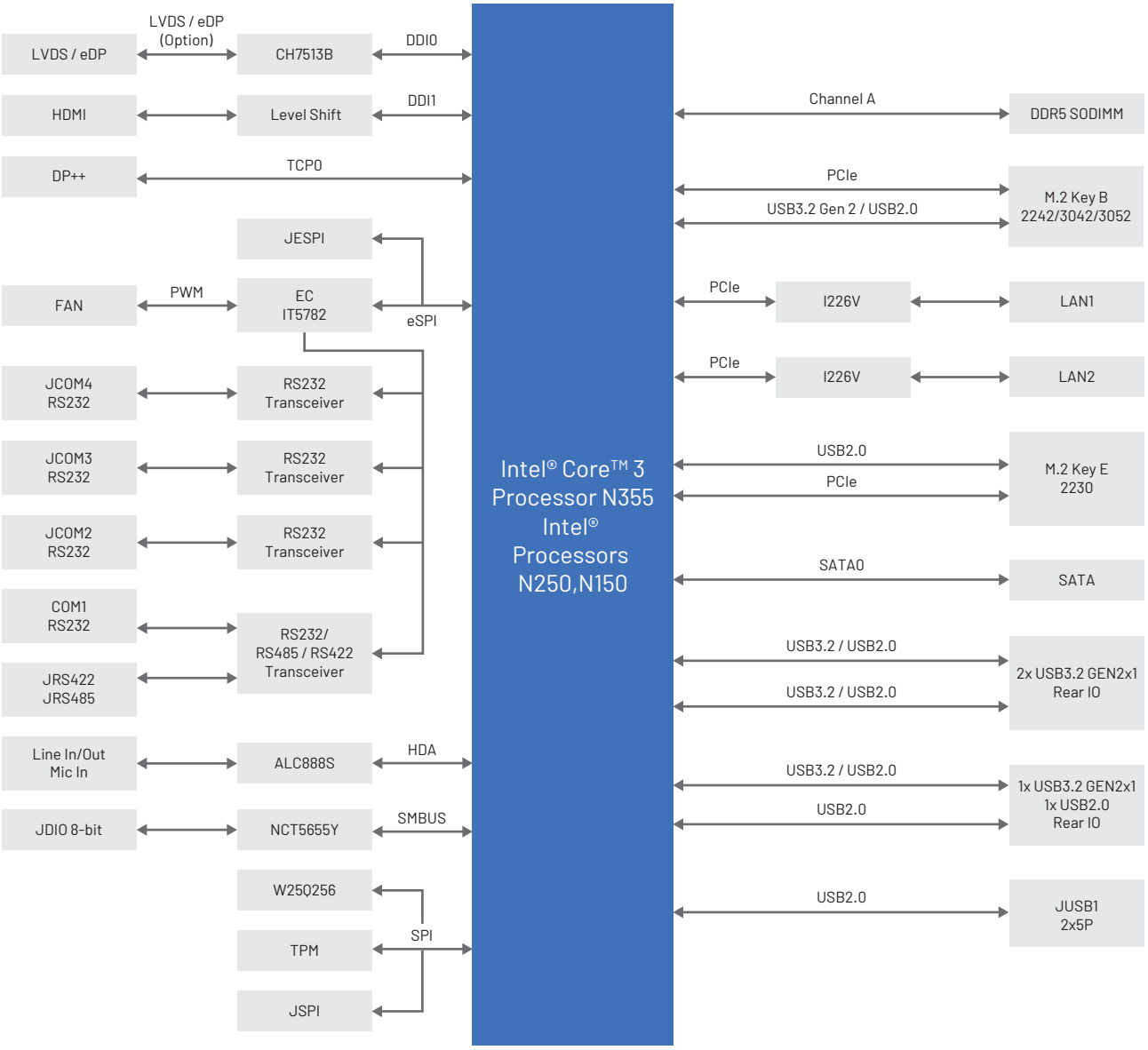
Ordering Information

P/N	Processor	Chipset	LAN	USB	COM	PCIe Slot	Power Input	Temp.	Note
ECM-TWL-N150-A1R	Intel® Processor N150	NA	2	6	4	0	+9 ~ 36V DC	0°C ~ 60°C (32°F ~ 140°F)	NA
ECM-TWL-N250-A1R	Intel® Processor N250	NA	2	6	4	0	+9 ~ 36V DC	0°C ~ 60°C (32°F ~ 140°F)	NA
ECM-TWL-N355-A1R	Intel® Core™ 3 Processor N355	NA	2	6	4	0	+9 ~ 36V DC	0°C ~ 60°C (32°F ~ 140°F)	NA

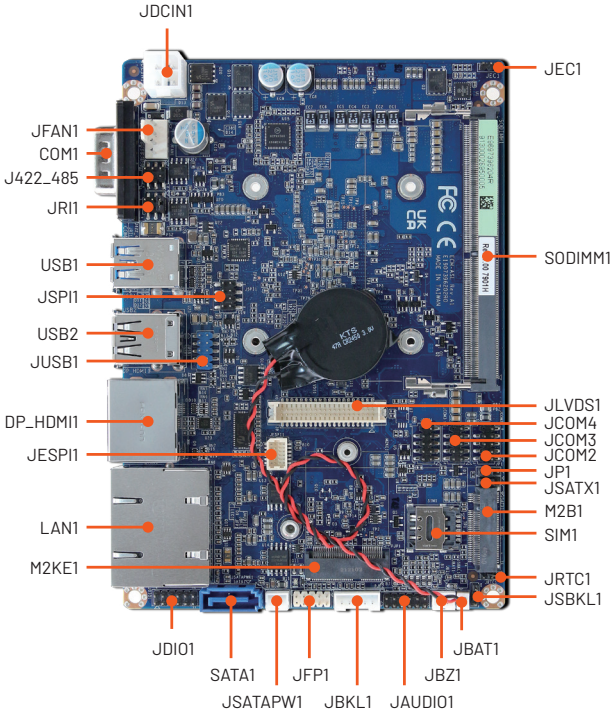
Packing List

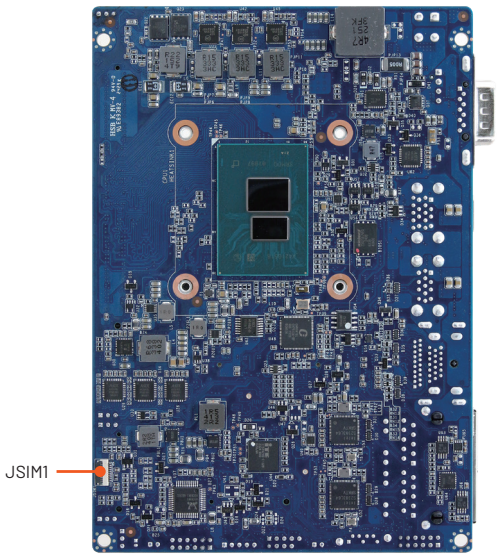
Item	Quantity
Serial ATA cable (7-pin, standard)	1
Wire SATA power cable (15-pin, 2P/2.0mm)	1
Flat cable 9P (M)-PHD 10P/2.0mm	1
CPU Heatsink	1
M.2 Key M&E screws	1

Block Diagram



I/O Overview


JDCIN1
JEC1
JFAN1
COM1
J422_485
JRI1
USB1
JSPI1
USB2
JUSB1
DP_HDMI1
JESPI1
LAN1
M2KE1
SODIMM1
JLVDS1
JCOM4
JCOM3
JCOM2
JP1
JSATX1
M2B1
SIM1
JRTC1
JSBKL1
JDIO1
SATA1
JSATAPW1
JFP1
JBKL1
JAUDIO1
JBZ1
JBAT1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