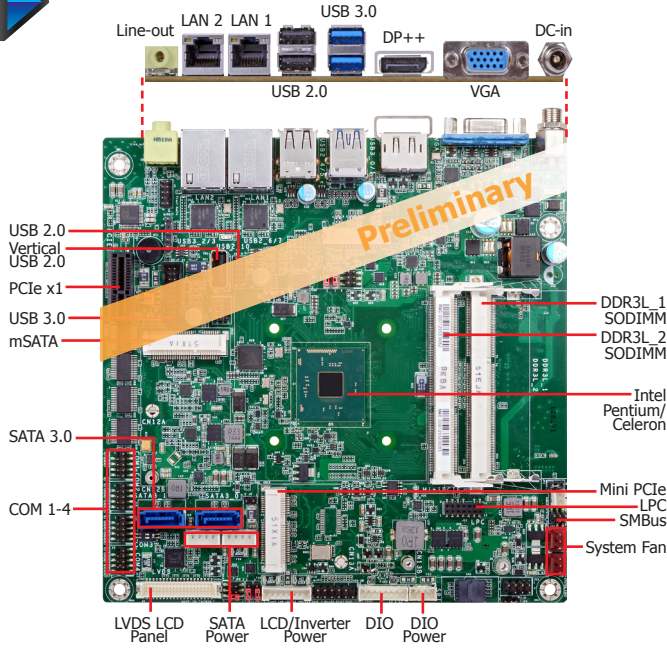


## BW171/BW173

Atom



\* The photos above refer to BW171.

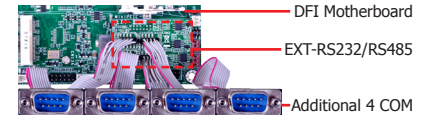
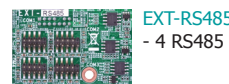
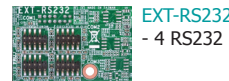
### Features

- 2 DDR3L 1600MHz SODIMM up to 8GB
- Three independent displays: DP++\*/eDP + VGA + LVDS
- DP++ resolution supports up to 3840x2160 @ 30Hz
- Multiple expansion:  
1 PCIe x1, 1 Mini PCIe, 1 mSATA, 1 SIM, 1 LPC
- Rich I/O: 2 Intel GbE, 4 COM, 4 USB 3.0, 5 USB 2.0
- LPC EXT-RS232/485 module supports 4 COM ports

\* Populated by default



### 2 Extension Modules for Additional 4 COM Ports (via the LPC connector)

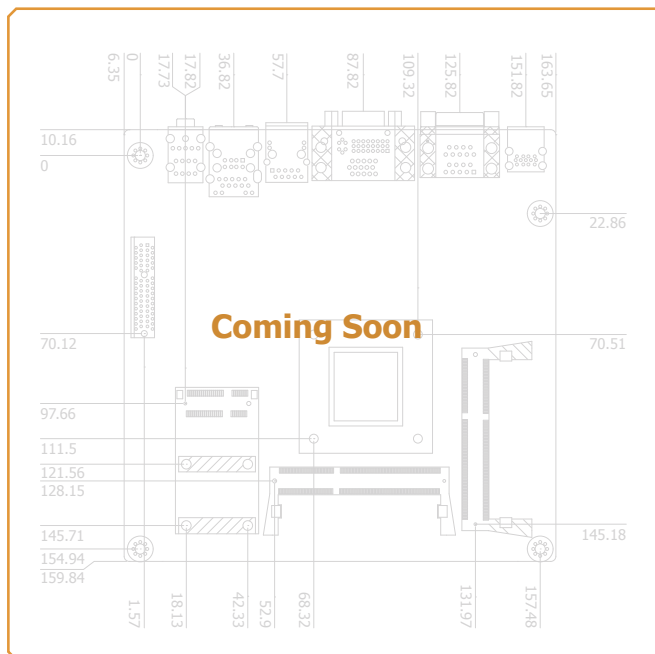


### Ordering Information

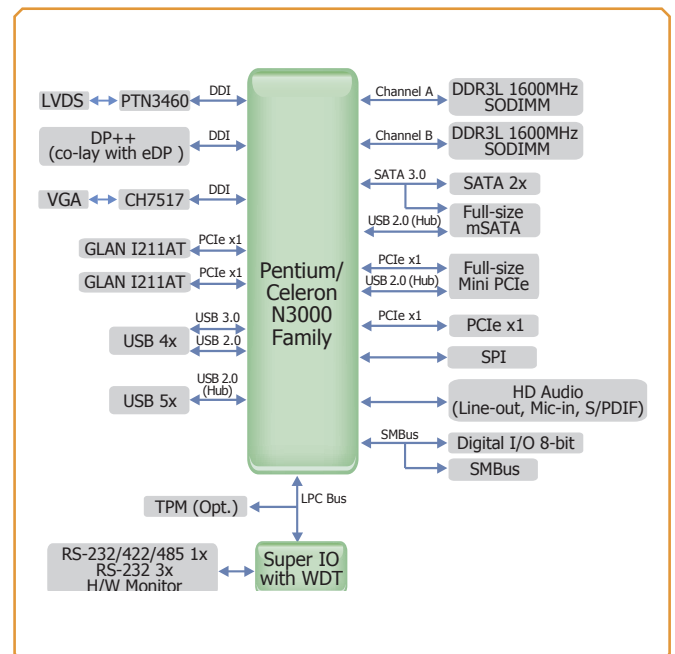
Model Name	P/N	Processor	Memory	DP++/eDP	GbE	RS-232/422/485	RS-232	USB3.0	USB2.0	Power	Thermal	Temp.
BW171-NB-N3710	770-BW1711-100G	N3710	2 SODIMM	DP++	2	1	3	4	5	12V DC	Fanless	0 to 60°C
BW171-NB-E8000	770-BW1711-200G	x5-E8000	2 SODIMM	DP++	2	1	3	4	5	12V DC	Fanless	0 to 60°C
BW171-NB-N3060	770-BW1711-000G	N3060	2 SODIMM	DP++	2	1	3	4	5	12V DC	Fanless	0 to 60°C
BW173-NB-N3710	770-BW1731-100G	N3710	2 SODIMM	DP++	2	1	3	4	5	15~36V DC	Fanless	0 to 60°C
BW173-NB-E8000	770-BW1711-200G	x5-E8000	2 SODIMM	DP++	2	1	3	4	5	15~36V DC	Fanless	0 to 60°C
BW173-NB-N3060	770-BW1711-000G	N3060	2 SODIMM	DP++	2	1	3	4	5	15~36V DC	Fanless	0 to 60°C

Note: N3160 and N3010 are supported upon request with MOQ requirement.

### Mechanical Drawing



### Block Diagram



**Specifications**

<b>SYSTEM</b>	<b>Processor</b>	Intel® Pentium®/Celeron® Processor N3000 Family, BGA 1170 Intel® Atom™ Processor x5-E8000, Quad Core, 2M Cache, 1.04GHz, 5W Intel® Pentium® Processor N3710, Quad Core, 2M Cache, 1.6GHz (2.56GHz), 6W Intel® Celeron® Processor N3160, Quad Core, 2M Cache, 1.6GHz (2.24GHz), 6W Intel® Celeron® Processor N3060, Dual Core, 2M Cache, 1.6GHz (2.48GHz), 6W Intel® Celeron® Processor N3010, Dual Core, 2M Cache, 1.04GHz (2.24GHz), 4W		
	<b>Memory</b>	Two 204-pin SODIMM up to 8GB Dual Channel DDR3L 1600MHz		
	<b>BIOS</b>	Insyde SPI 64Mbit		
	<b>GRAPHICS</b>	<b>Controller</b>	Intel® HD Graphics	
	<b>Feature</b>	OpenGL 4.2, Direct X 11.1, OpenCL 1.2, OGL ES 3.0 HW Decode: H.264, MPEG2, VC1, VP8, H.265, MPEG4 HW Encode: H.264, MPEG2, MPEG4		
	<b>Display</b>	1 x VGA 1 x LVDS 1 x DP++/eDP (eDP available upon request)	VGA: resolution up to 1920x1200 @ 60Hz LVDS: dual channel 48-bit, resolution up to 1920x1200 @ 60Hz DP: resolution up to 3840x2160 @ 30Hz or 2560x1600 @ 60Hz eDP: resolution up to 2560x1440 @ 60Hz	
	<b>Triple Displays</b>	VGA + LVDS + DP++	VGA + LVDS + eDP (available upon request)	
<b>EXPANSION</b>	<b>Interface</b>	1 x PCIe x1 (Gen 2) 1 x SIM	1 x Full-size Mini PCIe (PCIe/USB) 1 x Full-size mSATA (USB/SATA)	
<b>AUDIO</b>	<b>Audio Codec</b>	Realtek ALC888 5.1-channel		
<b>ETHERNET</b>	<b>Controller</b>	2 x Intel® I211AT PCIe (10/100/1000Mbps)		
<b>REAR I/O</b>	<b>Ethernet</b>	2 x GbE (RJ-45)		
	<b>USB</b>	2 x USB 3.0	2 x USB 2.0	
	<b>Display</b>	1 x VGA	1 x DP++	
	<b>Audio</b>	1 x Line-out		
<b>INTERNAL I/O</b>	<b>Serial</b>	1 x RS-232/422/485 (RS-232 w/ power) (2.0mm pitch) 3 x RS-232 (2.0mm pitch)		
	<b>USB</b>	2 x USB 3.0 (2.0mm pitch) 2 x USB 2.0 (2.0mm pitch)	1 x Vertical USB 2.0 (type A)	
	<b>Display</b>	1 x LVDS LCD Panel Connector 1 x LCD Inverter Power 1 x eDP LCD Panel (available upon request)		
	<b>Audio</b>	1 x Audio (Line-out/Mic-in) 1 x S/PDIF		
	<b>SATA</b>	2 x SATA 3.0 (up to 6Gb/s) (SATA port 1 multiplexed with mSATA) 2 x SATA Power		
	<b>DIO</b>	1 x 8-bit DIO		
	<b>LPC</b>	1 x LPC (supports LPC EXT-RS232/RS485 module)		
	<b>SMBus</b>	1 x SMBus		
	<b>WATCHDOG TIMER</b>	<b>Output &amp; Interval</b>	System Reset, Programmable via Software from 1 to 255 Seconds	
	<b>SECURITY</b>	<b>TPM</b>	Available Upon Request	
<b>POWER</b>	<b>Type</b>	Single 12V +/-10% DC (BW171)	Wide Range 15~36V (BW173)	
	<b>Connector</b>	DC-in Jack	Right Angle Connector (4-pin) (available upon request) Vertical Type Connector (4-pin) (available upon request)	
	<b>Consumption</b>	BW171 Typical: N3710:12V @ 0.436A (5.23Watt) Max.: N3710:12V @ 0.658A (7.90Watt) BW173 Typical: N3710:19V @ 0.186A (3.53Watt) Max.: N3710:19V @ 0.398A (7.56Watt)		
	<b>RTC Battery</b>	Lithium 3V (210mAH)		
<b>OS SUPPORT</b>	<b>Microsoft/ Linux</b>	Windows 7 (/WES7) 32/64-bit Windows 8.1 (64-bit) Windows 10 IoT Enterprise 64-bit	Debian 8 (with VESA graphic driver) CentOS 7 (with VESA graphic driver) Ubuntu 15.10 (Intel graphic driver available)	
<b>ENVIRONMENT</b>	<b>Temperature</b>	Operating: 0 to 60°C	Storage: -40 to 85°C	
	<b>Humidity</b>	Operating: 10 to 90% RH	Storage: 10 to 90% RH	
	<b>MTBF</b>	BW171 : 357,014 hrs @ 25°C; 209,779 hrs @ 45°C ; 132,472 hrs @ 60°C BW173 : 353,593 hrs @ 25°C; 207,418 hrs @ 45°C ; 130,956 hrs @ 60°C Calculation model: Telcordia Issue 2, Method I Case 3 Environment: GB, GC – Ground Benign, Controlled		
<b>MECHANICAL</b>	<b>Dimensions</b>	Mini-ITX Form Factor	170mm (6.7") x 170mm (6.7")	
	<b>Height</b>	PCB: 1.6mm	Top Side: TBD, Bottom Side: TBD	

**Packing List**

• 1 BW171/BW173 motherboard	
• 1 COM port cable (Length: 250mm)	A81-015001-000G
• 1 Serial ATA data with power cable (Length: 300mm)	A81-002013-000G
• 1 DVD	
• 1 Heat sink (Height: 18.3mm)	A71-010026-000G

**Optional Items**

• USB 2.0 port cable (Length: 200mm)	332-753059-000G
• USB 3.0 port cable (Length: 200mm)	TBD
• COM port cable (Length: 250mm)	A81-015001-001G
• Serial ATA data with power cable (Length: 300mm)	A81-002013-000G
• Power adapter (100W, 12V)	671-110001-100G
• Power adapter (120W, 19V)	671-112004-100G
• LPC EXT-RS232 module (4 x RS232 ports)	770-EXTRS1-000G
• LPC EXT-RS485 module (4 x RS485 ports)	770-EXTRS1-100G
• I/O shield	A49-BW1710-000G
• DT122 Chassis	761-DT1220-200G