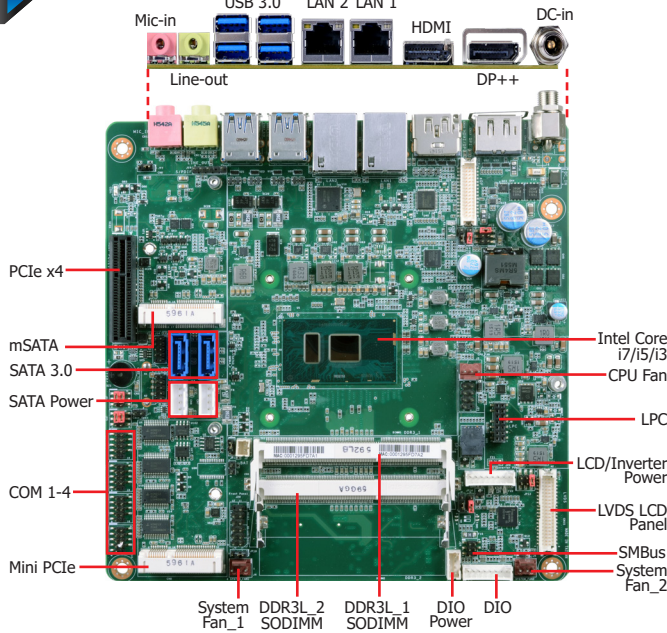




# SU171/SU173

ULT



\* The photos above refer to SU173.

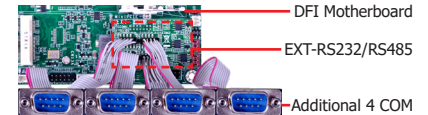
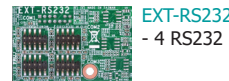
## Features

- 2 DDR3L 1600MHz SODIMM up to 16GB
- Three independent displays: LVDS\*/eDP + HDMI\*/DP + DP++
- DP++ resolution supports up to 4096x2304 @ 60Hz
- Multiple expansion: 1 PCIe x4, 1 Mini PCIe, 1 LPC
- Storage: 2 SATA 3.0, 1 mSATA/Mini PCIe
- Rich I/O: 2 Intel GbE, 4 COM, 4 USB 3.0, 4 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)

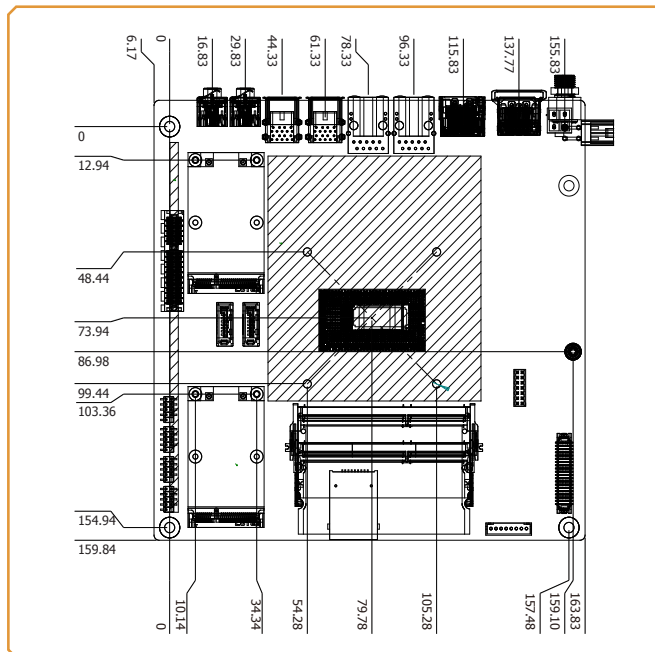


## Ordering Information

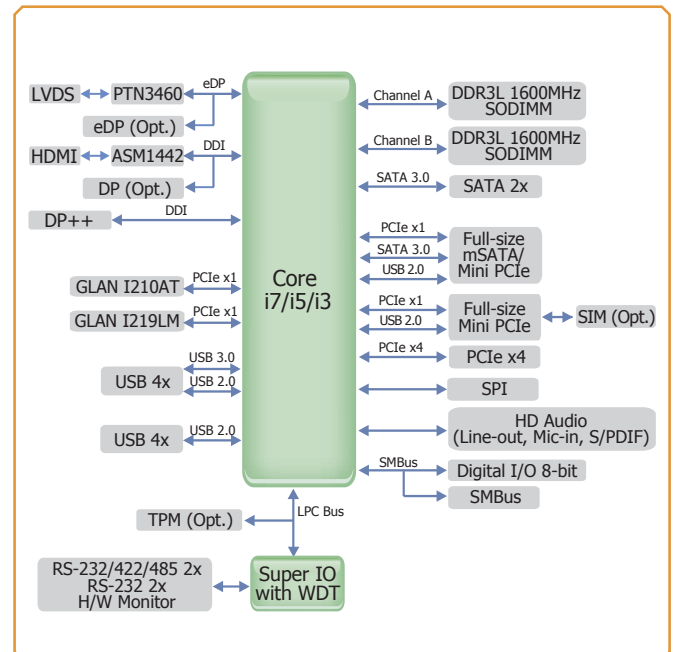
| Model Name     | P/N             | Processor | Memory   | LVDS/eDP | HDMI/DP | GbE | RS-232/422/485 | RS-232 | USB 3.0 | USB 2.0 | Power     | Thermal | Temp.       |
|----------------|-----------------|-----------|----------|----------|---------|-----|----------------|--------|---------|---------|-----------|---------|-------------|
| SU171-NB-6300U | 770-SU1711-200G | i5-6300U  | 2 SODIMM | LVDS     | HDMI    | 2   | 2              | 2      | 4       | 4       | 12V DC    | Fanless | 0 to 60°C   |
| SU171-NB-3955U | 770-SU1711-000G | 3955U     | 2 SODIMM | LVDS     | HDMI    | 2   | 2              | 2      | 4       | 4       | 12V DC    | Fanless | 0 to 60°C   |
| SU171-NB-6600U | 770-SU1711-300G | i7-6600U  | 2 SODIMM | LVDS     | HDMI    | 2   | 2              | 2      | 4       | 4       | 12V DC    | Fanless | 0 to 60°C   |
| SU171-NE-6600U | 770-SU1711-400G | i7-6600U  | 2 SODIMM | LVDS     | HDMI    | 2   | 2              | 2      | 4       | 4       | 12V DC    | Fanless | -20 to 70°C |
| SU173-NB-6300U | 770-SU1731-200G | i5-6300U  | 2 SODIMM | LVDS     | HDMI    | 2   | 2              | 2      | 4       | 4       | 15-36V DC | Fanless | 0 to 60°C   |
| SU173-NB-3955U | 770-SU1731-000G | 3955U     | 2 SODIMM | LVDS     | HDMI    | 2   | 2              | 2      | 4       | 4       | 15-36V DC | Fanless | 0 to 60°C   |
| SU173-NB-6600U | 770-SU1731-300G | i7-6600U  | 2 SODIMM | LVDS     | HDMI    | 2   | 2              | 2      | 4       | 4       | 15-36V DC | Fanless | 0 to 60°C   |
| SU173-NE-6600U | 770-SU1731-400G | i7-6600U  | 2 SODIMM | LVDS     | HDMI    | 2   | 2              | 2      | 4       | 4       | 15-36V DC | Fanless | -20 to 70°C |

Note: i3-6100U is supported upon request with MOQ requirement

## Mechanical Drawing



## Block Diagram



## Specifications

|                       |                        |                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                      |  |
|-----------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>SYSTEM</b>         | <b>Processor</b>       | 6th Generation Intel® Core™ Processors, BGA 1356<br>Intel® Core™ i7-6600U Processor, Dual Core, 4M Cache, 2.6GHz (3.4GHz), 15W<br>Intel® Core™ i5-6300U Processor, Dual Core, 3M Cache, 2.4GHz (3.0GHz), 15W<br>Intel® Core™ i3-6100U Processor, Dual Core, 3M Cache, 2.3GHz, 15W<br>Intel® Celeron® Processor 3955U, Dual Core, 2M Cache, 2.0GHz, 15W |                                                                                                                                                                      |  |
|                       | <b>Memory</b>          | Two 204-pin SODIMM up to 16GB                                                                                                                                                                                                                                                                                                                          | Dual Channel DDR3L 1600MHz                                                                                                                                           |  |
|                       | <b>BIOS</b>            | Insyde SPI 128Mbit                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                      |  |
|                       | <b>GRAPHICS</b>        | <b>Controller</b>                                                                                                                                                                                                                                                                                                                                      | Intel® HD Graphics 520                                                                                                                                               |  |
|                       | <b>Feature</b>         | OpenGL 4.4, DirectX 12, OpenCL 2.1<br>HW Decode: AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9<br>HW Encode: AVC/H.264, MPEG2, JPEG, HEVC/H265, VP8, VP9                                                                                                                                                                                 |                                                                                                                                                                      |  |
|                       | <b>Display</b>         | 1 x LVDS/eDP (eDP available upon request)<br>1 x HDMI/DP (DP available upon request)<br>1 x DP++                                                                                                                                                                                                                                                       | LVDS: dual channel 48-bit, resolution up to 1920x1200 @ 60Hz<br>DP: resolution up to 4096x2304 @ 60Hz<br>HDMI: resolution up to 2560x1600 @ 60Hz or 4096x2160 @ 24Hz |  |
|                       | <b>Triple Displays</b> | LVDS + HDMI + DP++<br>LVDS + DP + DP++ (available upon request)                                                                                                                                                                                                                                                                                        | eDP + HDMI + DP++ (available upon request)<br>eDP + DP + DP++ (available upon request)                                                                               |  |
| <b>EXPANSION</b>      | <b>Interface</b>       | 1 x PCIe x4 (Gen 3)<br>1 x SIM (available upon request)                                                                                                                                                                                                                                                                                                | 1 x Full-size Mini PCIe (PCIe/USB/SATA)<br>1 x Full-size Mini PCIe (PCIe/USB)                                                                                        |  |
| <b>AUDIO</b>          | <b>Audio Codec</b>     | Realtek ALC888S-VD2-GR                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                      |  |
| <b>ETHERNET</b>       | <b>Controller</b>      | 1 x Intel® I210AT PCIe (10/100/1000Mbps)<br>1 x Intel® I219LM PCIe with iAMT11.0 (10/100/1000Mbps) (only Core i7/i5 supports iAMT)                                                                                                                                                                                                                     |                                                                                                                                                                      |  |
| <b>REAR I/O</b>       | <b>Ethernet</b>        | 2 x GbE (RJ-45)                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                      |  |
|                       | <b>USB</b>             | 4 x USB 3.0                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                      |  |
|                       | <b>Display</b>         | 1 x HDMI/DP (DP available upon request)                                                                                                                                                                                                                                                                                                                | 1 x DP++                                                                                                                                                             |  |
|                       | <b>Audio</b>           | 1 x Line-out                                                                                                                                                                                                                                                                                                                                           | 1 x Mic-in                                                                                                                                                           |  |
| <b>INTERNAL I/O</b>   | <b>Serial</b>          | 2 x RS-232/422/485 (RS-232 w/ power) (2.0mm pitch)<br>2 x RS-232 (2.0mm pitch)                                                                                                                                                                                                                                                                         |                                                                                                                                                                      |  |
|                       | <b>USB</b>             | 4 x USB 2.0 (2.0mm pitch) or<br>2 x USB 2.0 (2.0mm pitch) + 1 x Vertical USB 2.0 (type A) (available upon request)                                                                                                                                                                                                                                     |                                                                                                                                                                      |  |
|                       | <b>Display</b>         | 1 x LVDS LCD Panel Connector<br>1 x LCD/Inverter Power                                                                                                                                                                                                                                                                                                 | 1 x eDP LCD Panel Connector<br>(available upon request)                                                                                                              |  |
|                       | <b>Audio</b>           | 1 x S/PDIF                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                      |  |
|                       | <b>SATA</b>            | 2 x SATA 3.0 (up to 6Gb/s)<br>2 x SATA Power                                                                                                                                                                                                                                                                                                           | RAID 0/1/5                                                                                                                                                           |  |
|                       | <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>                                                                                                                                                                                                                                                                                                                                             | dTPM 2.0 (available upon Request)                                                                                                                                    |  |
| <b>POWER</b>          | <b>Type</b>            | Single 12V +/-10% DC (SU171)                                                                                                                                                                                                                                                                                                                           | Wide Range 15~36V (SU173)                                                                                                                                            |  |
|                       | <b>Connector</b>       | DC-in Jack                                                                                                                                                                                                                                                                                                                                             | Right Angle Connector (4-pin) (available upon request)<br>Vertical Type Connector (4-pin) (available upon request)                                                   |  |
|                       | <b>Consumption</b>     | SU171<br>Typical: 6600U:12V @ 0.98A (11.76Watt); 6300U:12V @ 0.95A (11.40Watt)<br>Max: 6600U:12V @ 1.62A (19.44Watt); 6300U:12V @ 1.58A (18.96Watt)<br>SU173<br>Typical: 6600U:19V @ 0.48A (9.12Watt); 6300U:19V @ 0.43A (8.170Watt)<br>Max: 6600U:19V @ 1.05A (19.95Watt); 6300U:19V @ 0.90A (17.10Watt)                                              |                                                                                                                                                                      |  |
|                       | <b>RTC Battery</b>     | Lithium 3V (210mAH)                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                      |  |
| <b>OS SUPPORT</b>     | <b>Microsoft/Linux</b> | Windows 7 (WES7) 32/64-bit<br>Windows 8.1 (64-bit)<br>Windows 10 IoT Enterprise 64-bit                                                                                                                                                                                                                                                                 | Debian 8 (with VESA graphic driver)<br>CentOS 7 (with VESA graphic driver)<br>Linux                                                                                  |  |
| <b>ENVIRONMENT</b>    | <b>Temperature</b>     | Operating: 0 to 60°C / -20 to 70°C                                                                                                                                                                                                                                                                                                                     | Storage: -40 to 85°C                                                                                                                                                 |  |
|                       | <b>Humidity</b>        | Operating: 5 to 90% RH                                                                                                                                                                                                                                                                                                                                 | Storage: 5 to 90% RH                                                                                                                                                 |  |
|                       | <b>MTBF</b>            | SU171 : 357,691 hrs @ 25°C; 206,450 hrs @ 45°C ; 130,229 hrs @ 60°C<br>SU173 : 347,511 hrs @ 25°C; 200,230 hrs @ 45°C ; 126,434 hrs @ 60°C<br>Calculation model: Telcordia Issue 2, Method I Case 3<br>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: 16.5mm, Bottom Side: 3.5mm                                                                                                                                 |  |
| <b>CERTIFICATIONS</b> | CE, FCC Class B, RoHS  |                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                      |  |

## Packing List

|                                                      |                 |
|------------------------------------------------------|-----------------|
| • 1 SU171/SU173 motherboard                          |                 |
| • 1 COM port cable (Length: 250mm, 1 x COM ports)    | A81-015011-001G |
| • 1 Serial ATA data with power cable (Length: 300mm) | A81-002013-000G |
| • 1 Heat sink (Height: 25mm)                         | A71-010033-000G |

## Optional Items

|                                                    |                 |
|----------------------------------------------------|-----------------|
| • USB port cable (Length: 200mm)                   | A81-001032-016G |
| • COM port cable (Length: 250mm, 1 x COM ports)    | A81-015011-001G |
| • Serial ATA data with power cable (Length: 300mm) | A81-002013-000G |
| • Power adapter (100W, 12V, Level 6)               | 671-110002-100G |
| • 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-SU1710-000G |
| • Half height I/O shield                           | A49-SU1710-010G |
| • DT122 Chassis                                    | 761-DT1220-200G |