**AMAX-5580**

**Intel® Core™ i7/i5/Celeron® Control IPC With EtherCAT Slice IO Expansion**

### Features
- 6th generation Intel® Core™ i7/i5/Celeron processors up to 2.6 GHz with 4GB/8GB DDR4 memory
- 2 x GbE, 4 x USB 3.0, 2 x RS-232/422/485, 1 x VGA, 1 x HDMI
- Dual power input with alarm output
- Compact and fanless design for DIN-rail mount in Control cabinet
- Maximum 4 expansion capability on left side for AMAX-54XX series module
- Wireless mPCIe module support for 3G/LTE/Wifi/GPS
- Chassis grounding protection
- Independent resource on Intel i210 GbE for better EtherCAT performance
- Upstream LAN redundancy (Intel Teaming Function)
- Downstream EtherCAT cable redundancy
- Optimized BIOS for CODESYS Real-time Control Kernel

### Introduction
Advantech’s AMAX-5580 is a compact and powerful Control IPC with an Intel Core i7/i5/Celeron CPU. It is the ideal open control platform to be combined with AMAX-5000 Series EtherCAT Slice IO modules, and features flexible I/O expansion, real-time I/O control, network capability through various interfaces, and support dual power input for robust power system. It also has a built-in standard mini PCI express interface for wireless communication. The AMAX-5580 is the best solution for data gateway, concentrator and data server applications, its seamless integration with I/O can save costs and fulfill a diverse range of automation projects.

### Specifications
#### General
- Certification: CE, FCC, UL
- Dimensions (W x H x D): 139 x 100 x 80 mm
- Form Factor: Passive Cooling and Front Accessible
- Enclosure: Aluminum housing
- Mounting: DIN-rail
- Weight (Net): 1.3 kg
- Power Requirement: 24 VDC ± 20%
- Power Consumption: 15 W (Typical), 42 W (Max)
- OS Support: Microsoft® Windows 7 32/64 bit, Windows 10 64bit
- Power Connector: Dual power input with alarm output
- Grounding Protection: Chassis grounding

#### Environment
- Operating Temperature: -10 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow
- Storage Temperature: -40 ~ 85°C (-40 ~ 185°F)
- Relative Humidity: 95% RH @ 40°C, non-condensing
- Shock Protection: Operating, IEC 60068-2-27, 10G, half sine, 11 ms
- Vibration Protection: Operating, IEC 60068-2-64, 1 Grms, random, 5 ~ 500 Hz, 1hr/axis (M.2)

#### Application Software
**IEC-61131-3 Control Software: CODESYS RTE V3**

#### Performance Data (1000 IL-Lines )
- BOOL: 2.736 µs
- BYTE: 2.736 µs
- INT: 3.054 µs
- DINT: 2.736 µs
- REAL: 4.472 µs

#### I/O Interfaces
- Serial Ports: 2 x RS-232/422/485, DB9, 50 – 115.2kbs
- LAN Ports: 2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T Fast Ethernet
- USB Ports: 4 x USB ports (4 x USB 3.0 compliant )
- Display: 1 x VGA, support up to 1920 x 1200 @ 60 Hz 24 bpp

#### System Hardware
- BIOS: AMI EFI 128Mbit Flash BIOS
- Watchdog Timer: Programmable 255 levels timer interval, from 1 to 255 sec
- Processor: Intel® Core™ i7-6600U 2.6GHz Skylake Dual Core, 4MB L2
- Intel® Core™ i5-6300U 2.4GHz Skylake Dual Core, 3MB L2
- Intel® Celeron 3955U 2.0GHz Skylake Dual Core, 2MB L2
- System Chip: Integrated PCH-LP
- Memory: Dual Channel DDR4, Build in 4G for Celeron, 8G for Core i5/i7
- Graphics Engine: Intel® Gen 9 LP GT2
- Ethernet: Intel® i210-IT GbE. 802.1qaw, IEEE1588/802.1AS, 802.3az
- LED Indicators: LEDs for Power, Storage, Program and Abnormal status
- Storage: 1 x M.2, 2280 M-Key
- Expansion: 1x Full-size mPCIe Slot, for wireless module or NVRAM module
- AMAX-5400 function modules expansion from left side (max. 4)
- AMAX-5000 EtherCAT Slice IO from right side

### Upstream Communication Function
- Advantech Direct Database connection (FBD)
- OPC/DA & OPC/UA Server (supported after SP13)
- PLCHandle Driver for WebAccess
- Advantech MQTT Agent
- Advantech Data Connect (API)

### Downstream Communication Protocols
- EtherCAT Master
- MODBUS/RTU Master (Client)
- MODBUS/TCP Master (Client) and Slave
- PROFINET Master
- ETHERNET/IP Master
- CANopen

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All product specifications are subject to change without notice. Last updated: 3-Mar-2020
AMAX-5580

Dimensions

AMAX-5580 is an open-based controller and there are many combinations for different CPU/RAM/OS/Applications. To provide better user experience, those diverse configurations are converged into below part numbers in different product category. With these well integrated SRP offering, user will have better L/T for sample testing.

<table>
<thead>
<tr>
<th>Category</th>
<th>Part Number</th>
<th>CPU</th>
<th>RAM</th>
<th>Storage</th>
<th>OS</th>
<th>NVRAM</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control IPC Barebone</td>
<td>AMAX-5580-C3000A</td>
<td>Celeron</td>
<td>4G</td>
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<td></td>
<td>AMAX-5580-54000A</td>
<td>i5</td>
<td>8G</td>
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<td>AMAX-5580-74000A</td>
<td>i7</td>
<td>8G</td>
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<tr>
<td>CODESYS ready PAC</td>
<td>ESRP-SCS-W5580-CR0</td>
<td>Celeron</td>
<td>4G</td>
<td>64G SSD</td>
<td>WIN7 64-bit</td>
<td>2M</td>
<td>CODESYS V3 Pure Control</td>
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<td>ESRP-SCS-W5580-5M1</td>
<td>i5</td>
<td>8G</td>
<td>64G SSD</td>
<td>WIN7 64-bit</td>
<td>2M</td>
<td>CODESYS V3 P2P Motion w/ HMI</td>
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<tr>
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<td>ESRP-SCS-W5580-7C1</td>
<td>i7</td>
<td>8G</td>
<td>64G SSD</td>
<td>WIN7 64-bit</td>
<td>2M</td>
<td>CODESYS V3 Advanced Motion w/ HMI</td>
</tr>
</tbody>
</table>

Accessories

M.2 Storage Module
- SQF-SM8U2-32G-SBE: SQF M.2 2280 32G UMLC (-40~85°C)
- SQF-SM8U4-64G-SBE: SQF M.2 2280 64G UMLC (-40~85°C)
- SQF-SM8U4-128G-SBE: SQF M.2 2280 128G UMLC (-40~85°C)
- SQF-SM8V4-512G-SBE: SQF M.2 2280 512G 3D TLC (-40~85°C)
- SQF-SM8V4-1T-SBE: SQF M.2 2280 1T 3D TLC (-40~85°C)

NVRAM Module
- PCM-2300MR-AE: 2MB MRAM, mPCIe interface

DIN-Rail Type Power Supply Module
- PSD-A60W24: DIN Rail AC to DC 100-240V 60W 24V
- PSD-A120W24: DIN Rail AC to DC 100-240V 120W 24V
- 96PSD-A240W24-MN: DIN Rail AC to DC 100-240V 240W 24V

Accessory for Mounting
- AMAX-5580-USBK: USB/HDMI fix kit for AMAX-5580
- AMAX-5580-WMK: Wall Mount Kit for AMAX-5580
- AMAX-54XX-WMK: Wall Mount Kit for AMAX-54XX

Embedded OS
- 20703WE7PS0023: WESTP X64 MUI for AMAX-5580
- 20703WE7PS0029: WESTP X64 MUI for AMAX-5580
- 20703WXS0003: W10 LTSC x64 for AMAX-5580 (i7)
- 20703WXS0003: W10 LTSC x64 for AMAX-5580 (i5/Celeron)

Expansion Modules

AMAX-5400 Series Expansion Module (left side)
- AMAX-5400E: PCIe-mini card with SIM card slot
- AMAX-5410: 2 x Gig expansion modules
- AMAX-5410P: 2 x PoE expansion module
- AMAX-5424V: 4 x USB 3.0 with full bandwidth
- AMAX-5490: 2 x isolated RS-232/422/485
- AMAX-5495: 2 x CAN module

AMAX-5000 EtherCAT Slice IO Module (right side)
- AMAX-5001: Smart Power Input module with 4-Ch DI
- AMAX-5015: 4-Ch RTD (2/3 wire)
- AMAX-5017V: 6-Ch Voltage AI, multi-gain 16-bit
- AMAX-5017C: 6-Ch Current AI, 0-20/4-20mA 16-bit
- AMAX-5024: 4-Ch AO multi-gain, 16-bit
- AMAX-5051: 8-Ch Iso. DI
- AMAX-5052: 16-Ch Iso. DI
- AMAX-5056: 8-Ch Iso. DO sink type
- AMAX-5056SO: 8-Ch Iso. DO source type
- AMAX-5057: 16-Ch Iso. DO sink type
- AMAX-5057SO: 16-Ch Iso. DO source type
- AMAX-5060: 2-Ch Counter/Encoder 32-bit
- AMAX-5074: EtherCAT coupler
- AMAX-5079: EtherCAT extension
- AMAX-5091T: 2-Ch timestamp, 6-ch w/o timestamp DI
- AMAX-5095T: 2-Ch timestamp DO
- AMAX-5017H: 4-Ch 10kHz High speed AI (preliminary)
- AMAX-5081: 1-Ch TTL/RS-422 Encoder/Counter (preliminary)