AMAX-5570/5570E V2

Intel Atom® Embedded Controller



Features

- Optimized BIOS & Embedded OS for real-time control (Windows & Linux)
- Achieves 32-axis motion control with 500 µs EtherCAT cycle time under Linux
- OPC UA and Modbus TCP/RTU as IT connectivity enabled by CODESYS
- EtherCAT, PROFINET, Ethernet I/P, and CANopen are OT connectivity feature enabled by CODESYS
- Unlimited I/O points, fieldbus networks, and visualization variables for CODESYS applications
- CODESYS Visualization (Target & Web), SoftMotion and CNC/Robotics support via different package
- Advantech Data Connect (ADC) Library provides flexible and highly efficient data connection with 3rd party application software through symbols (PLC Handler) and shared memory (C++/C#)
- Retain memory for CODESYS data retention function (optionally installation)

(for AMAX-5570 V2)

- Intel Atom® Elkhart Lake quad-core x6414RE processor
- System I/O with 2 x GbE, 2 x USB, 2 x Isolated CAN 2.0, 2 x Isolated COM, 1 x HDMI
- 1 x M.2 B-Key (USB3.0 / SATA) expansion
- AMAX-5000 EtherCAT Slice I/O expansion (local 1A Supply w/o power module)
- UL 61010 compliant for industrial applications

(for AMAX-5570E V2)

- Intel Atom® Elkhart Lake quad-core x6414RE processor
- System I/O with 4 x GbE, 2 x USB, 2 x Isolated COM, 1 x HDMI, 1 x 5 pin terminal (dual power input)
- AMAX-5000 EtherCAT Slice I/O expansion (Power module needed)
- AMAX-5400 PCIe modules optional for left side (max.2 slots)
- iDAQ-964 modules, optional for left side
- EMC compliance for Energy Management and Battery Energy Storage System (IEC-61000-4 Industrial requirement)
- UL 61010 compliant for industrial applications

Introduction

AMAX-5570/5570E V2, Intel Atom® Embedded Controller, is designed for all IoT control requirement. Each AMAX control platform is system-level optimized (1ms real-time with low jitter) to provide good real-time environment for running CODESYS Softlogic under Windows OS and Linux OS respectively. AMAX control platform will come with a pre-installed CODESYS license to enable EtherCAT for OT networks, and supports Modbus, OPC UA and MQTT for IT networks. With optional NVRAM installation, the data retention feature can be reliably executed while running CODESYS. Moreover, Advantech also provides flexible expansion modules, such as EtherCAT I/O from the Slice I/O series and Block I/O series, CODESYS-ready i-Door and embedded PCI express modules or iDAQ modules (only available for the AMAX Embedded Controller).

AMAX delivers a diverse array of control systems in various form factors tailored to meet the demands of different application scenarios.

Hardware Specifications

Part Number		AMAX-5570-100X6A AMAX-5570-102X6A AMAX-5570-106X6A AMAX-5570-108X6A AMAX-5570-200X6A AMAX-5570-202X6A AMAX-5570-206X6A AMAX-5570-208X6A	AMAX-5570E-100X6A AMAX-5570E-102X6A AMAX-5570E-106X6A AMAX-5570E-108X6A AMAX-5570E-200X6A AMAX-5570E-202X6A AMAX-5570E-206X6A AMAX-5570E-208X6A
System Hardware	Processor	Intel Atom® x6414RE 1.5GHz, Quad Core, 1.5MB L2 cache	Intel Atom® x6414RE 1.5GHz, Quad Core, 1.5MB L2 cache
	BIOS	Optimized BIOS for real-time performance	
	Memory	On-board 8GB	On-board 8GB
	Storage	64GB eMMC	128GB eMMC
	Retain Memory	Optional, PCM-2300MR-BE (4MB) for CODESYS Retain/Persistence	
	Ethernet	2 x Realtek RTL8119i GbE (LAN A/B) 1 x Realtek RTL8119i GbE (For AMAX-5000 Slice I/O connection)	4 x Realtek RTL8119i FastEthernet (LAN A/B/C/D) 1 x Realtek RTL8119i GbE (For AMAX-5000 Slice I/O connection)
	LED Indicator	LEDs for Power, RUN (CODESYS program run)	LEDs for Power, RUN (CODESYS program run)
	Expansion	1 x M.2 B-Key (USB 3.0 / SATA signal) AMAX-5000 Slice I/O modules, optional for right side	AMAX-5400 PCIe modules, optional for left side (max.2) iDAQ-964 modules, optional for left side AMAX-5000 Slice I/O modules, optional for right side

All product specifications are subject to change without notice.

Hardware Specifications (Cont.)

I/O Interface	Local Digital I/O	N/A	N/A
	Seriel Port	1 x RS-232/422/485 (terminal block), 50 ~ 115.2kbps 1 x 485 (terminal block), 50 ~ 115.2kbps, 2 x CAN Bus (terminal block)	2 x 485 (terminal block), 50 ~ 115.2kbps
	LAN Port	2 x 10/100/1000BASE-T Fast Ethernet (RJ45)	2 x 10/100/1000BASE-T Fast Ethernet (RJ45) 2 x 10/100BASE-T Fast Ethernet (RJ45)
	USB Port	2 x USB 3.2	2 x USB 3.2
	Display	1 x HDMI, supports up to 1920 x 1080 @60Hz	1 x HDMI, supports up to 1920 x 1080 @60Hz
	Grounding Protection	Chassis grounding	Chassis grounding
	Power Connector	1 x 2 pin	1 x 5 pin, dual power input
General	OS Support	Win10 LTSC 2021 LTSC 64bit AdvLinuxTU V4 64bit (EdgeLinux 22.04)	Win10 LTSC 2021 LTSC 64bit AdvLinuxTU V4 64bit (EdgeLinux 22.04)
	Power Requirements	24 V_{DC} ± 20%	24 V_{DC} ± 20%
	Power Consumption	15.8W (Typical), 72W (Max)	15.8W (Typical), 79.2W (Max)
	Enclosure	Aluminum alloy housing	Aluminum alloy housing
	Mounting	DIN-rail	DIN-rail
	Weight (Net)	Approx. 0.55kg	Approx. 0.78kg
	Dimensions (W x D x H)	65.3 x 70 x 100 mm	74.8 x 70 x 100 mm
	Certification	CE, FCC, UL61010-1, BSMI	CE, FCC, UL61010-1, BSMI (pend)
Environment	Operating Temperature	-20 ~ 60°C (-4 ~ 140°F)	-25 ~ 60°C (-13 ~ 140°F)
	Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)	-40 ~ 85°C (-40 ~ 185°F)
	Relative Humidity	10 ~ 95% RH @ 40°C, non-condensing	10 ~ 95% RH @ 40°C, non-condensing
	Shock Protection	Operating, IEC 60068-2-27, 50G, half sine, 11 ms (eMMC)	Operating, IEC 60068-2-27, 50G, half sine, 11 ms (eMMC)
	Vibration	Operating, IEC 60068-2-64, 2 Grms, random, 5 ~ 500 Hz, 1hr/axis (eMMC)	Operating, IEC 60068-2-64, 2 Grms, random, 5 ~ 500 Hz, 1hr/axis (eMMC)

CODESYS Package for Windows

Part Number		AMAX-5570-100X6A AMAX-5570E-100X6A	AMAX-5570-102X6A AMAX-5570E-102X6A	AMAX-5570-106X6A AMAX-5570E-106X6A	AMAX-5570-108X6A AMAX-5570E-108X6A
CODESYS Basic Run Time	Runtime	CODESYS Control RTE V3.5 SP20			
	OT Network	EtherCAT MainDevice, Profinet Controller CIFX, Ethernet I/P Scanner CIFX, CANopen Manager			
	IT Network	Modbus/TCP Client and Server, Modbus/RTU Client, OPC UA Server			
	EtherCAT I/O Connection	No I/O Points Limitation			
CODESYS HMI	Visualization	N/A	Target Visualization (TV, Local HMI) & Web Visualization (WV, Web Browser).		
	Tags		Unlimited tags		
CODESYS SoftMotion	Motion Control Benchmark	N/A		16 axis with 1ms cycle time [Tested under Windows CODESYS, EtherCAT CSP mode, PTP (point-to-point) command]	
	EtherCAT Servo Connection			No Axes Limitation in EtherCAT Servo Drive connections.	
CODESYS CNC & Robotics	CNC Interpolator	N/A	N/A	N/A	No axes interpolation limitations

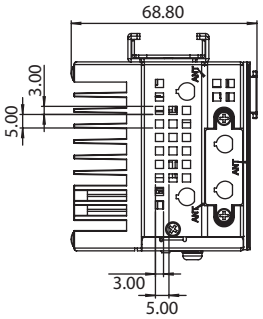
CODESYS Package for Linux

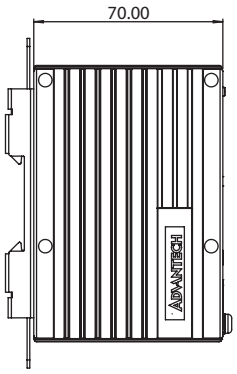
Part Number		AMAX-5570-200X6A AMAX-5570E-200X6A	AMAX-5570-202X6A AMAX-5570E-202X6A	AMAX-5570-206X6A AMAX-5570E-206X6A	AMAX-5570-208X6A AMAX-5570E-208X6A
CODESYS Basic Run Time	Runtime	CODESYS Linux Control V3 SP20			
	OT Network	EtherCAT MainDevice, Profinet Controller IEC, Ethernet I/P Scanner IEC, CANopen Manager			
	IT Network	Modbus/TCP Client and Server, Modbus/RTU Client/Server, OPC UA Server			
	EtherCAT I/O Connection	No I/O Points Limitation			
CODESYS HMI	Visualization	N/A	Web Visualization (WV, Web Browser)		
	Tags		Unlimited tags		
CODESYS SoftMotion	Motion Control Benchmark	N/A	N/A	32 axis with 500 µs cycle time [Tested under Linux CODESYS, EtherCAT CSP mode, PTP (point-to-point) command]	
	EtherCAT Servo Connection			No Axes Limitation in EtherCAT Servo Drive connections.	
CODESYS CNC & Robotics	CNC Interpolator	N/A	N/A	N/A	No axes interpolation limitations.

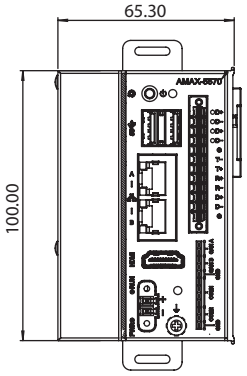
Dimensions

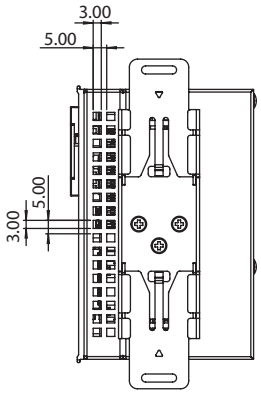
Unit: mm

AMAX-5570 V2

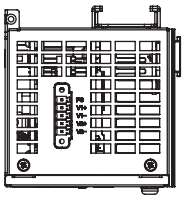


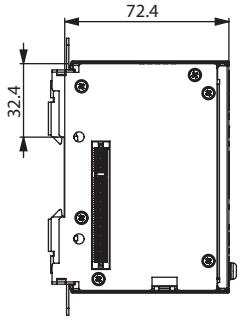


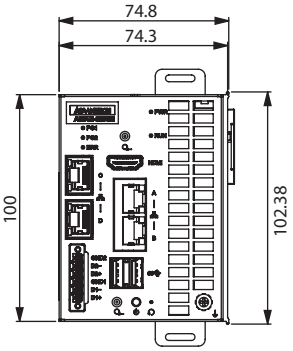


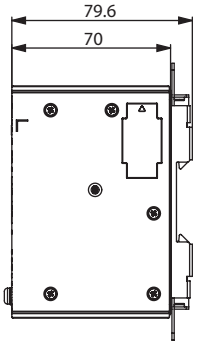


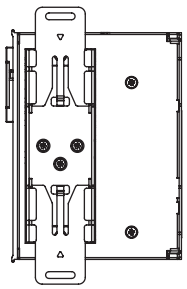
AMAX-5570E V2











Ordering Information

Pure HW Platform

P/N	Description
AMAX-5570-E2300B	Intel Control Platform, x6414RE, 8G/64G, 2LAN w/2CAN bus, Barebone
AMAX-5570E-0200X6A	Intel Control Platform, x6414RE, 8G/128G, 4LAN2COM, Barebone

AMAX CODESYS Controller

Below part number is ONLY controller platform with CODESYS license sticker. All working systems shipment shall **follow BTO process to complete the accessories selection, OS installation and CODESYS activation**.

P/N	Description
AMAX-5570-100X6A	Intel Embedded Controller,Atom x6414RE,2LAN w/CAN bus,Win CDS Control
AMAX-5570-102X6A	Intel Embedded Controller,Atom x6414RE,2LAN w/CAN bus,Win CDS Control+Target/Web Visu
AMAX-5570-106X6A	Intel Embedded Controller,Atom x6414RE,2LAN w/CAN bus,Win CDS Control+Target/Web Visu+SoftMotion
AMAX-5570-108X6A	Intel Embedded Controller,Atom x6414RE,2LAN w/CAN bus,Win CDS Control+Target/Web Visu+SoftMotion+CNC & Robotics
AMAX-5570E-100X6A	Intel Embedded Controller,Atom x6414RE,4LAN w/iso. COM,Win CDS Control
AMAX-5570E-102X6A	Intel Embedded Controller,Atom x6414RE,4LAN w/iso. COM,Win CDS Control+Target/Web Visu
AMAX-5570E-106X6A	Intel Embedded Controller,Atom x6414RE,4LAN w/iso. COM,Win CDS Control+Target/Web Visu+SoftMotion
AMAX-5570E-108X6A	Intel Embedded Controller,Atom x6414RE,4LAN w/iso. COM,Win CDS Control+Target/Web Visu+SoftMotion+CNC & Robotics

P/N	Description
AMAX-5570-200X6A	Intel Embedded Controller,Atom x6414RE,2LAN w/CAN bus,Linux CDS Control
AMAX-5570-202X6A	Intel Embedded Controller,Atom x6414RE,2LAN w/CAN bus,Linux CDS Control+Web Visu
AMAX-5570-206X6A	Intel Embedded Controller,Atom x6414RE,2LAN w/CAN bus,Linux CDS Control+Web Visu+SoftMotion
AMAX-5570-208X6A	Intel Embedded Controller,Atom x6414RE,2LAN w/CAN bus,Linux CDS Control+Web Visu+SoftMotion+CNC&Robotics
AMAX-5570E-200X6A	Intel Embedded Controller,Atom x6414RE,4LAN w/iso. COM,Linux CDS Control
AMAX-5570E-202X6A	Intel Embedded Controller,Atom x6414RE,4LAN w/iso. COM,Linux CDS Control+Web Visu
AMAX-5570E-206X6A	Intel Embedded Controller,Atom x6414RE,4LAN w/iso. COM,Linux CDS Control+Web Visu+SoftMotion
AMAX-5570E-208X6A	Intel Embedded Controller,Atom x6414RE,4LAN w/iso. COM,Linux CDS Control+Web Visu+SoftMotion+CNC&Robotics

Assembly Accessories

Storage Selection

M.2 Bkey SATA Storage Module (AMAX-5570 V2 Only)

- **SQF-S4BV1-64GDSDM** SQF SATA M.2 2242 650-D 64G 3D TLC BiCS5 (-20~85°C)
- **SQF-S4BV1-128GDSDM** SQF SATA M.2 2242 650-D 128G 3D TLC BiCS5 (-20~85°C)
- **SQF-S4BV1-256GDSDM** SQF SATA M.2 2242 650-D 256G 3D TLC BiCS5 (-20~85°C)
- **SQF-S4BV2-512GDSDM** SQF SATA M.2 2242 650-D 512G 3D TLC BiCS5 (-20~85°C)
- **SQF-S4BV2-1TDSDM** SQF SATA M.2 2242 650-D 1T 3D TLC BiCS5 (-20~85°C)
- **SQF-S4BV1-64GDSDE** SQF SATA M.2 2242 650-D 64G 3D TLC BiCS5 (-40~85°C)
- **SQF-S4BV1-128GDSDE** SQF SATA M.2 2242 650-D 128G 3D TLC BiCS5 (-40~85°C)
- **SQF-S4BV1-256GDSDE** SQF SATA M.2 2242 650-D 256G 3D TLC BiCS5 (-40~85°C)
- **SQF-S4BV2-512GDSDE** SQF SATA M.2 2242 650-D 512G 3D TLC BiCS5 (-40~85°C)
- **SQF-S4BV2-1TDSDE** SQF SATA M.2 2242 650-D 1T 3D TLC BiCS5 (-40~85°C)

NVRAM Module

- **PCM-2300MR-BE** 4MB MRAM, mPCIE interface

DIN-Rail Type Power Supply Module

- **96PSD-A120W24-DL** DIN RAIL A/D 100-240V 120W 24V
- **96PSD-A240W24-DF** DIN RAIL A/D 100-240V 240W 24V
- **PSD-A120W24** A/D 100-240V 120W 24V

Embedded OS

- **20701WX1ES0010** Img W10LTSC v6.09 B014 AMAX-5570(S)(E) Entry
- **20701U22DS0016** Image AdvLinuxTu-IOTG_x64 V4.3.5 for AMX5 series

Windows Real-Time Control Software (CODESYS RTE)

- **32OTADVWX86004** Software CODESYS WRTE Driver V3.5.2010.2

Linux Real-Time Control Software (CODESYS Control V3 for Linux)

- **32OTADVLX86004** SW CDS x86Linux Driver V3.5.20P4.2098(w/o TV)

Optional Expansion Modules (AMAX-5570E V2 only)

AMAX-5400 PCIe Expansion Module (left side)

- **AMAX-5410** 2 x GigE expansion module
- **AMAX-5490** 2 x isolated RS-232/422/485
- **AMAX-5495** 2 x CAN module