Advantech Power & Energy Automation Computers
Robust Products for a Variety of Power and Energy Applications

Introduction
Features and Functions
Smart Substation Solutions
Selection Guide
Advantech Power Automation Computers

Robust Products for a Variety of Power and Energy Applications

IEC 61850-3 Certification
Products with IEC 61850-3 Certification meet the smart substation's station and bay level.

Time Synchronization
Functionality with IRIG-B
IRIG-B is an important time synchronization mode that ensures efficient and reliable communication between power automation systems.

Ethernet Redundancy
Ethernet redundancy ensures communication is maintained if one Ethernet port fails thereby avoiding loss of data.

2500VAC Isolation with Serial Port
Isolation separates ports so there is no need to be concerned about differences in voltage.

Flexible Module Expansion with Robust XPCIe Family
I/O expansion modules are specifically designed for the ECU-4784 rack-mount automation computer. There are multiple I/O cards such as - serial cards, fiber cards, IRIG-B cards and Gigabyte Ethernet cards - for different data applications.

Ethernet Redundancy
Ethernet redundancy ensures communication is maintained if one Ethernet port fails thereby avoiding loss of data.

Advantech's powerful TÜV certified ECU-4784 Embedded PC has been specifically designed to meet the critical requirements of power automation. IEC-61850-3 and IEEE1613 certification demonstrates the ECU-4784 suitability for electrical power communication protocol conversion, intelligent remote data analysis, network communications security and comprehensive monitoring applications, which provides higher reliability and stability, specially suitable for global power automation, energy automation and harsh environments.

Product Features
Robust Products for a Variety of Power and Energy Applications

Advantech’s powerful TUV certified ECU-4784 Embedded PC has been specifically designed to meet the critical requirements of power automation. IEC-61850-3 and IEEE1613 certification demonstrates the ECU-4784 suitability for electrical power communication protocol conversion, intelligent remote data analysis, network communications security and comprehensive monitoring applications, which provides higher reliability and stability, specially suitable for global power automation, energy automation and harsh environments.

Time Synchronization Functionality with IRIG-B
IRIG-B is an important time synchronization mode that ensures efficient and reliable communication between power automation systems.

Robust Design-
Fanless and Dual Power Design
The fanless dual power design ensures that dust particles aren’t drawn into the system and that if one power source fails the devices will continue working.
SCADA Application

In the Smart Substation field, it’s very important to be able to remotely monitor substation devices from a supervisory center. High performance computing platforms can easily integrate the HMI/DATA collection, data monitoring, environmental status, which helps operators accurately evaluate their devices’ status and take action.

Application Requirements
- Reliable IEC 61850-3 certification
- High-performance computing platform
- AMT/TPM

Cyber Security for Smart Grids

There are different grades of network protection priorities in a substation, and use in these environments need reliable cyber security. This requires a software firewall or comparable hardware firewall devices to prevent illegal or unauthorized user access.

Application Requirements
- Reliable IEC 61850-3 certification
- High-performance Ethernet
- Virtual Machine/TPM

Communication & Data Gateway for IEC-60870/IEC-61850

Numerous intelligent electronic devices have their own isolated protocols such as IEC-60870-5(101,103,104) in the substation. Customers have to transform these isolated protocols into the unified 61850-3 standard protocol to achieve interconnected communications.

Application Requirements
- Reliable IEC 61850-3 gateway platform
- Multi-functional communication interfaces including isolated serial port, IRIG-B, serial port, Ethernet, etc.
## Selection Guide

### Model Name | ECU-579 | ECU-4784 | ECU-4574 / ECU-4674 | ECU-4553 | ECU-1152 / ECU-1251
---|---|---|---|---|---
**CPU** | Intel® Xeon® Processor Scalable Family | Intel® Coffee Lake Xeon® E-2276ML | Intel® ATOM E3840 1.6GHz | Intel® ATOM E3840 1.6GHz | Intel® ATOM E3840 1.6GHz
**Onboard RAM** | up to 768G w/ECC | up to 64G DDR4 RAM with ECC for Xeon | 4G DDR3L SDRAM | 1G DDR3L SDRAM | 512MB DDR3L
**Display** | VGA; DVI | DVI x 2 or VGA; DVI | DB15 VGA connector | VB15 VGA connector | VB15 VGA connector
**Serial Ports** | NA | 2 x Isolated RS-232 (Standard) | ECU-4574: 10 x RS232/485 | 6 x Isolation | 6 x Isolation
**Ethernet Ports** | 4 x 10/100/1000 Base-T RJ45 ports | 10 x RS232/485 | 4 x 10/100 Base-T | 1 x IRIG-B (COM1) | RS-232/485
**USB Ports** | 3 x USB3.0 | 4 x USB2.0 (include 1 x internal USB) | One | One | One
**Expansion** | 2 x PCIe x16, 1 x PCIe x8, 1 x PCIe x4, Mini PCIe x1 | 4 x Isolation RS-232/485 (ECU-1152) | 2 x Isolated CAN2.0B | 2 x Isolated CAN2.0B | 2 x Isolated CAN2.0B
**Onboard I/O** | - | - | - | - | -
**Watchdog Timer** | Yes | Yes | Yes | Yes | Yes
**Storage Slots** | M.2 | 1 x mSATA | Two Internal micro-SD for ECU-4553 | Two Internal micro-SD for ECU-4553-LQ21SBE
**2.5" HDD Expansion** | 4 x SATA | 2 x SATA | 2 x SATA | 2 x SATA | Two Internal micro-SD for ECU-4553-R12SAE
**Power Consumption** | Max to 800W | 25W~35W | 24W | 10W | 7W
**Power Requirements** | Supports Redundant Power Input | Supports Redundant Power Input | Supports Redundant Power Input | Supports Redundant Power Input | Supports Redundant Power Input
**Weight** | 6.0 kg | 6.0 kg | 5.5 kg | 4.5 kg | 1 kg
**Ordering Information** | ECU-579-SSDA | ECU-4784-G585CE | ECU-4784-G575CE | ECU-4574-AS35CE | ECU-4553-R12SAE

## Specifications

### UNOP-1623D / 1618D
- 8-port Isolated/ Non Isolated RS-232/422/485

### UNOP-1624D
- 4-port Isolated RS-232/422/485 with IRIG-B

### UNOP-1514RE / 1514PE
- 4-port RJ45 / SFP Gigabit Base Ethernet Card

### UNOP-1514C
- 4-port Fiber Optic LAN Card

### UNOP-1000I
- PCI-Mini-PCI Expansion Card

### UNOP-1000J
- PCI-104 & Mini-PCIe Expansion Card

### UNOP-1000K
- PCIe Expansion Card