

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

Enabling an Intelligent Planet

www.advantech.com/eA

Advantech Power Automation Computers



Product Features



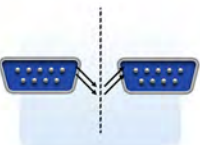
IEC 61850-3 Certification

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



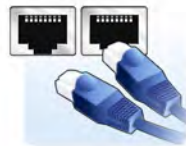
Flexible Module Expansion with Robust XPCle Family

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.



2500V_{AC} Isolation with Serial Port

Isolation separates ports so there is no need to be concerned about differences in voltage.



Ethernet Redundancy

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



Easy Diagnosis and Software Security Protection

iCDManager provides realtime communication status monitoring functions to get diagnosis information when connectivity exceptions occur to enhance maintenance efficiency and ensure the system operates smoothly.

DIO
RS485
Ethernet
PCI/P
IRIG-B

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.



PCIe
HSR/PRP



Time Synchronization Functionality with IRIG-B

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

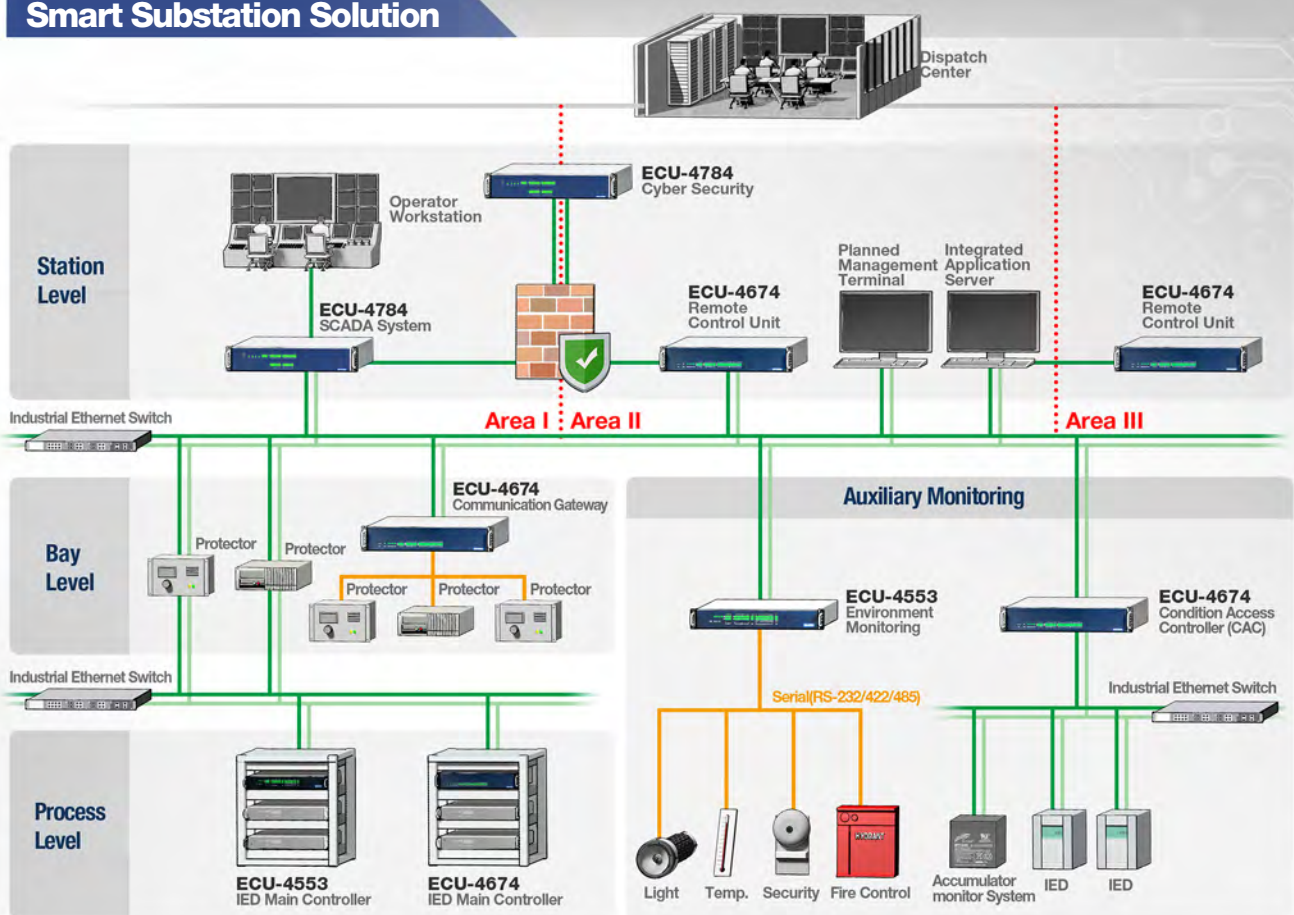


Robust Design-Fanless and Dual Power Design

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.

Application

Smart Substation Solution



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-4784	ECU-4784-Xeon	ECU-4574 / ECU-4674	ECU-4553	ECU-1152 / ECU-1251	ECU-1050 / ECU-1051
Certification	IEC 61850-3/IEEE 1613 China Electricity Certificate IV level	IEC 61850-3/IEEE 1613 China Electricity Certificate IV level	IEC 61850-3/IEEE 1613 Compliant China Electricity Certificate IV	China Electricity Certificate IV level	China Electricity Certificate IV level	-
CPU	Intel Haswell Core i7 4650U 1.7GHz dual-core, i3 4010U 1.7GHz, Celeron 2980U 1.6GHz	Intel SkyLake Xeon E3-1505L Quad-core 2.0GHz	Intel Atom N2600 1.66GHz	TI Cortex A8, 800MHz	TI Cortex A8, 800MHz	TI Cortex A8, 600MHz
Onboard RAM	8G DDR3L SDRAM 16G DDR3L SDRAM	16G DDR4 SDRAM with ECC 32G DDR4 SDRAM with ECC	2G DDR3 SDRAM	1G DDR3L SDRAM	512MB DDR3L(ECU-1152) 256MB DDR3L(ECU-1251)	256MB DDR3L
Display	VGA;DVI	VGA;DVI	VGA	VGA	-	-
Serial Ports	2 x Isolated RS-232 (Standard) 8 x RS-232/422/485 (Terminal Block)	2 x Isolated RS-232 (Standard) 8 x RS-232/422/485 (Terminal Block)	2 x isolated RS-232 ECU-4574: 8 x isolated RS-232/485 ECU-4674 : 1 x IRIG-B 16 x Isolated RS-232/485	16 x Isolated RS-232/485 1 x IRIG-B (COM1) 2 x Isolated CAN2.0B	6 x Isolation RS-232/485(ECU-1152) 4 x Isolation RS-232/485(ECU-1251)	2 x Optional Isolated RS232/RS485 (ECU-1051)
Ethernet Ports	8 x 10/100/1000Base-T	8 x 10/100/1000Base-T	2 x 10/100/1000Base-T 6 x 10/100Base-T	4 x 10/100Base-T	2 x 10/100Base-T	1 x 10/100 Base-T (ECU-1050) 2 x 10/100 Base-T (ECU-1051)
USB Ports	Six (One internal)	Six (One internal)	Five (One internal)	One	One	-
Expansion	2 x PCI/PCIE	2 x PCI/PCIE	1 x PCI 104	-	-	-
Onboard I/O	-	-	ECU-4674-A53SAE: 8 x isolated DI, 8 x isolated DO	-	-	-
Watchdog Timer	Yes	Yes	Yes	Yes	Yes	Yes
Storage Slots	One Internal(CFast)	One Internal(CFast)	One Internal (CF)	Two Internal (micro-SD)	Two Internal (micro-SD)	Two Internal (micro-SD)
2.5" HDD Expansion	2 x SATA	2 x SATA	2 x SATA	-	-	-
Operating Systems	WES7, Windows7, Windows 8, Windows Server 2012R2, Windows Server 2008R2(64bits), Windows Windows Embedded 8 64-bit	WES7, Windows7, Windows 8, Windows Server 2012R2, Windows Server 2008R2(64bits), Windows Windows Embedded 8 64-bit	WES7, Windows7, Linux	RT Linux	RT Linux	RT Linux
Mounting	2U Rack Mount	2U Rack Mount	2U Rack Mount	1U Rack-Mount	Wall-Mount, DIN Rail	Wall-Mount, DIN Rail
Anti-Vibration	2 G w/CFast, 1 G w/HDD	2 G w/CFast, 1 G w/HDD	2 G w/CF, 1 G w/HDD	2 G	2 G	-
Anti-Shock	30 G w/CFast, 20 G w/HDD	30 G w/CFast, 20 G w/HDD	30 G w/CF, 20 G w/HDD	30 G	30 G	-
Power Input Range	AC: 100 ~ 240 VAC DC: 100-240 VDC	AC: 100 ~ 240 VAC DC: 100-240 VDC	AC: 100 ~ 240 VAC DC: 100-240 VDC	AC: 100 ~ 240 VAC	DC: 10-30VDC	DC: 10-30VDC
Operating Temperature	-25 ~ 70°C (-13 ~ 158°F)	-25 ~ 60°C with 50% CPU/ I/O loading, without 2D/3D -25 ~ 45°C with 100% CPU/ I/O loading	-25 ~ 70°C (-13 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)
Power Consumption (Typical)	22W (i7 dual-core) 24.2W (Celeron)	35W	24W	10W	7W	2.4W @ 24V DC
Power Requirements	Supports Redundant Power Input Power 1: 100 ~ 240 VAC or 100 ~ 240 VDC Power 2: 100 ~ 240 VAC or 100 ~ 240 VDC	Supports Redundant Power Input Power 1: 100 ~ 240 VAC or 100 ~ 240 VDC Power 2: 100 ~ 240 VAC or 100 ~ 240 VDC	Supports Redundant Power Input Power 1: 100 ~ 240 VAC or 100 ~ 240 VDC Power 2: 100 ~ 240 VAC or 100 ~ 240 VDC	Power : 100 ~ 240 VAC or 100 ~ 240 VDC	Power : 24VDC (10-30VDC)	Power : 24VDC (10-30VDC)
Dimensions (W x H x D)	440 x 280 x 88 mm	440 x 280 x 88 mm	440 x 272 x 44 mm (ECU-4574) 440 x 220 x 88mm (ECU-4674)	440 x 220 x 44 mm	170 x 110 x 32.2 mm (ECU-1152) 140 x 96.5 x 30 mm (ECU-1251)	92 x 93.7 x 30 mm (ECU-1050) 92 x 93.7 x 30 mm (ECU-1051)
Weight	6.0 kg	6.0 kg	5.5 kg	4.5 kg	1 kg	1 kg
Ordering Information	ECU-4784-D55SBE ECU-4784-D56SBE ECU-4784-E15SAE ECU-4784-C25SBE	ECU-4784-E56SAE ECU-4784-E57SAE	ECU-4574-A53SAE ECU-4674-A53SAE ECU-4674-LBA53SAE	ECU-4553-R12SAE	ECU-1152-R11ABE ECU-1251-R10AAE	ECU-1050-R10AAE ECU-1051-R10AAE

XPCle




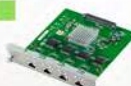





Serial Port

Digital I/O & Time Sync.

Time Sync.

Ethernet

Interface card

 <p>UNOP-1628D / 1618D 8-port Isolated/ Non Isolated/ RS-232/422/485</p>	<p>NEW!</p>  <p>ECU-P1761 4-ch Isolated DI, 4-ch Isolated RO Card with IRIG-B</p>	 <p>UNOP-1624D 4-port Isolated RS-232/422/485 with IRIG B</p>
 <p>UNOP-1514RE / 1514PE 4-port RJ45 / SFP Gigabit Base Ethernet Card</p>	 <p>UNOP-1514C 4-port Fiber Optic LAN Card</p>	<p>NEW!</p>  <p>ECU-P1524PE 2-port SFP Gigabit Base Ethernet Card with HSR/PRP</p>
 <p>UNOP-1000I PCI & Mini-PCI Expansion Card</p>	 <p>UNOP-1000J PCI-104 & Mini-PCI Expansion Card</p>	 <p>UNOP-1000K PCIe Expansion Card</p>

Regional Service and Customization Centers

China Kunshan
86-512-5777-5666

Taiwan Taipei
886-2-2792-7818

Netherlands Eindhoven
31-40-267-7000

Poland Warsaw
00800-2426-8080

USA Milpitas, CA
1-408-519-3898

Worldwide Offices

Greater China

China

Toll-Free 800-810-0345
Beijing 86-10-6298-4346
Shanghai 86-21-3632-1616
Shenzhen 86-755-8212-4222
Chengdu 86-28-8545-0198
Hong Kong 852-2720-5118

Taiwan

Toll-Free 0800-777-111
Taipei & IoT Campus 886-2-2792-7818
Taichung 886-4-2329-0371
Kaohsiung 886-7-229-3600

Middle East and Africa

Israel 072-2410527

Asia

Japan

Toll-Free 0800-500-1055
Tokyo 81-3-6802-1021
Osaka 81-6-6267-1887
Nagoya 81-52-856-9657

Korea

Toll-Free 080-363-9494
Seoul 82-2-3663-9494

Singapore

Singapore 65-6442-1000

Malaysia

Kuala Lumpur 60-3-7725-4188
Penang 60-4-537-9188

Thailand

Bangkok 66-2-248-3140

India

Bangalore 91-80-2545-0206
Pune 91-20-3948-2075

Indonesia

Jakarta 62-21-751-1939

Australia

Toll-Free 1300-308-531
Melbourne 61-3-9797-0100

Europe

Germany

Toll-Free 00800-2426-8080/81
Munich 49-89-12599-0
Düsseldorf 49-2103-97-855-0

France

Paris 33-1-4119-4666

Italy

Milano 39-02-9544-961

Benelux & Nordics

Breda 31-76-523-3100

UK

Newcastle 44-0-191-262-4844
London 44-0-870-493-1433

Poland

Warsaw 48-22-31-51-100

Russia

Moscow 8-800-555-01-50
St. Petersburg 8-800-555-81-20

Czech Republic

Ústí nad Orlicí 420-465-521-020

Ireland

Oranmore 353-91-792444

Americas

North America

Toll-Free 1-888-576-9668
Cincinnati 1-513-742-8895
Milpitas 1-408-519-3898
Irvine 1-949-420-2500
Ottawa 1-815-434-8731

Brazil

Toll-Free 0800-770-5355
São Paulo 55-11-5592-5355

Mexico

Toll-Free 1-800-467-2415
Mexico City 52-55-6275-2727

ADVANTECH

Enabling an Intelligent Planet

www.advantech.com

Please verify specifications before quoting. This guide is intended for reference purposes only. All product specifications are subject to change without notice.

No part of this publication may be reproduced in any form or by any means, either electronically, including photocopying and recording, or otherwise, without prior written permission from the publisher. All brand and product names are trademarks or registered trademarks of their respective companies.

© Advantech Co., Ltd. 2018



860000233