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Easy IoT Connectivity

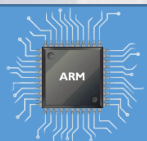
Elastel Edge Devices for IIoT

Remote or distributed outdoor IIoT applications such as in solar energy, oil and gas, and water/wastewater require reliable Edge Devices performing edge computing, data acquisition, control, monitoring, and transmission… in your IoT solutions.

Elastel talented engineers has applied their rich IIoT experience to develop series of edge products to support our partners and customers in their industrial applications around the world.

With performance, quality, open and easy-to-use in mind, Elastel has formed three product lines…

Industrial Raspberry Pi



Arm-based IoT Gateway

Industrial Cellular Router

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Industrial Raspberry Pi

To bring a Raspberry Pi to industrial applications, it’s not just put a Raspberry Pi in an industrial case, but much more. Benefit from Raspberry Pi industrial-grade Compute Module, ELASTEL talented engineers have designed our industry-focused carrier boards to integrate the Raspberry Pi CM4, which provides the core functionality of the Raspberry Pi 4, and allows to create expanded I/O connectivity options to serve specific industry needs.

More than that, leverage our proven passive cooling technology, we designed an aluminum enclosure to provide truly IPC-grade solution, not just for structural rigidity, but also as big heatsink dissipating heat from internal components.

With its capabilities, connectivity and reliability that meet today's IIoT, Industry 4.0 and edge computing projects need. From a compact IoT gateway and edge computing, to a highly customizable industrial controller, Elastel Industrial Raspberry Pi series is ready for your industrial applications.

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EG500

Industrial Raspberry Pi for edge computing, data acquisition, monitoring and control…applications

Technical Features

- Powered by Raspberry Pi CM4 Quad-core A72@1.5GHz, variant RAM & eMMC available
- 2x GbE, Global 4G LTE/3G/2G/NB-IoT Cellular network
- 2.4G/5.8G WiFi, Bluetooth, LoRaWAN, WiFi HaLow (802.11ah WiFi) available
- Isolated RS485, RS232, DI, AI & DO ports for industrial edge devices
- 35mm DIN-Rail and wall mount Supported
- Industrial-grade fanless design achieved operating temperature from -25°C to +70°C
- Fully Compatible with Raspbian, OpenWrt, Ubuntu, Winows 10 IoT, etc

Key Benefits

OpenSource OS
Widely compatible with your specific applications software

Rich I/O
GbE, RS485, RS232, DI, AI, DO available for your edge device

Industrial Design
From each components to design, all ready for industrial

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EG410

Industrial Raspberry Pi as Compact Controller,
IoT Gateway… with cellular connectivity available

Technical Features

- Powered by Raspberry Pi CM4 Cortex-A72 Quad-core processor @1.5GHz
- Variant RAM & eMMC available, with 1 x M.2 socket for 2280 NVME SSD reserved
- GbE, 4G LTE/3G/2G/NB-IoT, WiFi, BLE, LoRaWAN networks available
- Industrial RS485, RS232, DI, DO ports for your slave devices
- Compact full aluminum enclosure with DIN-Rail mount Supported
- Industrial-grade Fanless design achieved operating temperature from -25°C to +70°C
- Fully Compatible with Raspbian, OpenWrt, Ubuntu, Winows 10 IoT, etc

Key Benefits

CODESYS

Software-based PLC
Full compatible with software defined PLC solution like Codesys

SCADA Gateway
Acquire valuable data from your edge devices, and control

Cellular connectivity
Easy communication with slave machines over 4G to NB-IoT

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ElastBox400

Industrial Raspberry Pi Computer for Industrial Edge Computing, and Commercial Applications

Technical Features

- High-performance Raspberry Pi CM4 Cortex-A72 Quad-core processor @1.5GHz
- Up to 4GB RAM & 32GB eMMC available, with M.2 socket for NVMe SSD up to 2TB
- 2x Gigabit Ethernet for WAN/LAN connectivity and routing
- 4G LTE Cellular network, and 2.4G/5G WiFi, Bluetooth networks support
- Fanless Aluminum heatsink shell design achieved operating temperature up to +70°C
- 2x HDMI Output at up to 4Kp60, type-C power supply
- Fully Compatible with Raspbian, OpenWrt…, with onboard jumper freely reflashing

Key Benefits

POWERED BY Raspberry Pi

Rich Ecosystem
High-performance & Raspberry Pi open source programs ecosystem

Digital Signage
Compact size equipped 2x HDMI, with cloud content management

Education Demo
4G LTE network mobility, easy-to-use and easy reflashing

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Industrial Raspberry Pi series - Comparison Table

Features	EG410	EG500	ElastBox400
CPU	Broadcom BCM2711 Cortex-A72 @ 4x1.5GHz		
RAM	2GB (1 / 2 / 4 / 8 GB optional) LPDDR4-3200 SDRAM		
Flash Memory	8GB (8 / 16 / 32 GB optional) eMMC		
Cellular Network	Global 4G LTE / 3G / 2G, NB-IoT, CAT-M1		
Ethernet Port	1x 10/100/1000Mbps	2x 10/100/1000Mbps	2x 10/100/1000Mbps
802.11 b/g/n/ac Wi-Fi	Dual Band 2.4GHz & 5GHz + Bluetooth 5.0		
WiFi HaLow (802.11ah WiFi)	x	√ (EG500 WiFi HaLow edition)	x
LoRa	√ (Optional)	√ (Optional)	x
Serial Ports	1x RS232, 1x RS485		x
Digital Input (0..24VDC, Configurable pull up / down)	2x DI	6x DI	x
Digital Output	2x DO (0..60V, Max. power effciency: 500 mA)	6x DO (0..60V, Max. power effciency: 500 mA)	x
Analog Input	x	3x ADC (4~20mA or 0..10V DC, 18-bit resolution)	x
USB	2x USB2.0		
HDMI (Up to 4kp60 video & audio output)	1x HDMI 2.0		2x HDMI 2.0
Console Port	1x USB-C		1x USB-C for Power supply and Console
Additional Interfaces	1 x M.2 socket with 2280 NVME SSD	x	1 x M.2 socket with 2280 NVME SSD 40 pin standard Raspberry PI HAT
LED Indicator	1-power, 1-system	1-POWER, 1-WiFi, 1-SYSTEM, 1-ALARM,1-ONLINE, 3-Signal Strength	1-power, 1-system
Power Supply	Wide Range Voltages 9~36V DC, recommended 24V/1.5A		5V/3A power supply via USB-C port
Operating System	Optimized OpenWRT Linux 5.X		Optimized Raspbian Linux 5.X
Common Sotfware Features	Node-Red, Python, Docker, MQTT, WireGuard, Modbus RTU/TCP, Siemense S7, LogicLab PLC, UGS(Universal Gcode Sender), Codesys(PROFIBUS, PROFINET, EtherCAT, CANopen, BACnet)…		

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Arm-based IoT Gateway

Elastel Arm-based IoT Gateway series is designed on Arm-based computer as IoT Gateway for industrial applications from high-performance to entry-level models, it's including EG324 model based on high-performance Armv7 Cortex-A9, cost-optimized EG324 Lite model based on Arm A35, and entry-level DTU EC212 model based on Arm A7.

This series offers serial ports, Ethernet ports, wireless-ready, compact, and fanless hardware platform for space-critical automation applications. Equipped with Open OS like Ubuntu, Linux and prebuilt common data acquisition drivers like Modbus, MQTT, OPC UA, making them quick and easy implementation for remote monitoring and data acquisition applications.

Available wide variety of cellular connectivity options, compact size for cabinet installation, wide-operating temperature range, Elastel Arm-based IoT Gateway is able to deliver reliable, rugged, and cost-effective OT-to-IT connectivity for your various IoT applications.

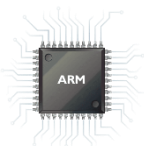
EG324

ARM-based high-performance industrial IoT Gateway
for data acquisition, alarm, and remote management

Technical Features

- Armv7 Quad-core Cortex-A9 @1.4 GHz, 512MB RAM + 8GB eMMC Hardware platform
- 2x 10/100 Mbps Ethernet, Global 4G LTE/3G/2G/NB-IoT Cellular network
- Isolated RS485 and RS232 for Modbus data acquisition
- 35mm DIN-Rail and wall mount Supported
- -40°C to +85°C Operating Temperature for harsh environment
- Node-Red, Docker, Modbus RTU/TCP, OPC UA, BACnet...protocols support
- Elastel Optimized Ubuntu 20.04 Firmware easy configure and flexible program

Key Benefits



High Performance
widely compatible with your specific software running on it

ubuntu

Flexible Configure
Ubuntu OS easy your configuration and programs

Node-RED

Node-Red Gateway
Prebuilt latest Node-Red for you easy and freely program

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EG324 Lite

ARM-based Cut-cost industrial IoT Gateway for data acquisition, alarm, and remote management

Technical Features

- Arm A35 @800MHz, 128MB RAM + 8GB eMMC Hardware platform
- 2x 10/100 Mbps Ethernet, Global 4G LTE/3G/2G/NB-IoT available
- 4x Isolated RS485 and RS232 for Modbus data acquisition
- 35mm DIN-Rail and wall mount Supported
- -40°C to +85°C Operating Temperature for harsh environment
- Modbus RTU/TCP, OPC UA, BACnet...protocols support
- Elastel Optimized Linux OS with WebUI and SDK for easy configure and program

Key Benefits

Cut Costs
sufficient performance and remove unnecessary expenses

From OT to IT
Dual Ethernet ports makes your edge data to cloud easily

Modbus Gateway
Acquire valuable data from your edge devices, and control

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EC212

Compact, entry-level industrial ARM-based DTU for data acquisition, OT to IT protocols support with webUI

Technical Features

- 2x RS485/RS232, equipped with OT to IT common protocols support
- Web-based configuration using built-in Ethernet LAN
- 4G/3G/2G/NB-IoT Cellular network support
- Hardware Watchdog for auto recovery
- SD slot for Offline port buffering and serial data log
- 35mm DIN-Rail and wall mount Supported
- Industrial-grade with enhanced surge protection, -40°C to +85°C Operating Temperature

Key Benefits

Cut Costs
sufficient performance and remove unnecessary expenses

Modbus Gateway
Acquire valuable data from your edge devices, and control

Cellular connectivity
Easy communication with slave machines over 4G to NB-IoT

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ARM-based IoT Gateway series - Comparison Table

Features	EG324	EG324 Lite	EC212
CPU	Armv7 Quad-core A9 @1.4 GHz	ARM Dual-core A35 @800MHz	ARM Cortex A7 @1.1GHz
RAM	512 MB (optional 1GB)	128 MB	64 MB
Flash	8 GB eMMC		256 MB
SD Slot	1 x SD Slot		
Ethernet Ports	2 x 10/100M		1x 10/100M
Serial Ports	2 x RS485 + 2 x RS-232/485		2 x RS-232/485
USB Ports	1x USB2.0		
Console Ports	1 x UART type-C connector		
Cellular Connectivity	4G LTE/3G/2G/NB-IoT via 1x mPCIe slot type Cellular module		
Wi-Fi(Optional)	via USB Wi-Fi adaptor		
GPS	Cellular module built-in		
Power Input	9 ~ 48 VDC, 12 ~ 30 VAC		9 ~ 36 VDC
Dimensions (L×W×H)	128.8mm×117mm×28mm		116mm×111mm×27mm
Installation	DIN-rail & Wall mounting		
Housing	Metal IP30		
Operating Temperature	-40 to 85° C (-40 to 185° F)		
Operating System	Ubuntu 20.04	Linux 5.10	Linux 5.10
OT to IT Protocols	Prebuilt ElastPro IIoT Gateway Software for easy setup OT-to-IT		
Secondary Program	Ubuntu APT, toolchain SDK	C, C#, Java, Python, with Toolchain SDK	

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Industrial Cellular Router

Elastel ER series Industrial Cellular Router is a full portfolio consisting of new generation 5G edge router ER550, Dual-SIM 4G VPN router ER500, and compact entry-level LTE router ER200 for industrial and enterprise applications.

ER series offers features such as Ethernet, Wi-Fi, serial ports, VPN security, dynamic routing and failover, providing reliable connectivity and business continuity solutions.

Available with a wide range of 5G/4G/3G/CAT M1/NB-IoT cellular networks and intelligent uninterrupted Elink technologies, Elastel industrial cellular router series is able to deliver high-speed, reliable, secure and cost-effective LTE connectivity for your various IoT applications.

ER550

Industrial Dual-SIM 5G Cellular router providing High Speed & Reliable network access for your edge devices

Technical Features

- Global 5G NR Sub-6 bands, SA and NSA dual modes, compatible with 4G LTE, 3G
- 5x 10/100/1000 Mbps GbE ports for Wired WAN & LAN
- 2.4G & 5.8G Hz Dual-band Wi-Fi, Up to 866.7Mbps high-speed WLAN
- Dual-core ARM CPU@ 1GHz, 512MB RAM, + 4GB eMMC for edge computing applications
- OpenWRT based OS, with dpkg tools and SDK available
- 2x Isolated RS485 and RS232 for edge devices data acquisition & management
- Industrial Reliability: Dual SIM, Dual power input backup, DIN-rail and panel mounting Supported, -35°C to +75°C Operating Temperature, 9-36VDC wide range power inputs, watchdog and always online connectivity technologies.

Key Benefits

5G Capability
Take 5G technology advantage for your High speed applications

High Performance
Not just an industrial router, but also edge computing capability

Dual SIM
Dual SIM for failover/back providing uninterrupted network

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ER500

Industrial Dual-SIM 4G Cellular router with 5 ETH Ports & Wi-Fi for your edge devices network access and VPN

Technical Features

- Global 4G LTE/ 3G/ 2G, CAT4, CAT M1, NB-IoT networks compatible
- 5x 10/100 Mbps Ethernet ports for Wired WAN & LAN, also support Wi-Fi for WLAN
- OpenWRT based OS, with dpkg tools and SDK available
- 2x Isolated RS485 and RS232 for edge devices data acquisition & management
- Industrial Reliability: Dual SIM, Dual power input backup, DIN-rail and panel mounting Supported, -35°C to +75°C Operating Temperature, 9-36VDC wide range power inputs, watchdog and always online connectivity technologies.

Key Benefits

VPN Router
Multiple VPN protocols support secure your edge devices links

Flexible OpenWrt
webUI configuration, plug-and-play, and Serial-to-IP features

Dual SIM
Dual SIM for failover/back providing uninterrupted network

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ER200

Compact entry-level Industrial LTE Cellular router with Wi-Fi for your edge devices network access and VPN

Technical Features

- Global 4G LTE/ 3G/ 2G, CAT4, CAT M1, NB-IoT networks compatible
- 2x 10/100 Mbps Ethernet ports for Wired WAN & LAN, also support Wi-Fi for WLAN
- OpenWRT based OS, with dpkg tools and SDK available
- 2x Isolated RS485 and RS232 for edge devices data acquisition & management
- 5-36V VDC dual types power input backup, DIN-rail and panel mounting
- -35°C to +75°C Operating Temperature, watchdog and reliable connectivity technologies

Key Benefits

Compact & Rugged
100x100mm size DIN-rail & panel mount fit your compact cabinet

Serial-to-IP DTU
Not just a cellular router, but also a Serial-to-IP DTU by RS485/232

VPN Router
Multiple VPN protocols support secure your edge devices links

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Industrial Cellular Router series - Comparison Table



Features	ER550	ER500	ER200
Cellular	5G/4G/3G	4G/3G/2G	4G/3G/2G/NB-IoT
Number of SIM	2	2	1
Ethernet Ports	5x GbE	5x 10/100M	2x 10/100M
Wi-Fi	2.4GHz & 5.8GHz	2.4GHz	
GPS (Optional)	Cellular module built-in		
Serial ports	1-RS232, 1-RS485		
USB	1x USB2.0	-	-
TF slot	1x TF Card slot	-	-
CPU	Dual-core ARM Cortex-A53@ 1GHz	MIPS24KEc @580 MHz	
RAM	512 MB	128 MB	64 MB
Flash	4 GB	32 MB	16 MB (optional 32MB)
Dimensions (L×W×H)	126 × 44 x 166 mm		100 × 100 x 23 mm
Housing	Metal(IP30)		
Installation	DIN-rail & Panel mounting		
Power Supply	DC9~36V, 2 PIN terminal block and Jack connectors;	DC5~36V, 2 PIN terminal block and Jack connectors;	
Operating Temperature	-35 to 75° C (-31 to 167° F)		
Operating System	ElastOS (OpenWRT based) with Serial-to-IP Data Acquisition programs		
Serial to IP protocols	Modbus RTU/TCP, TCP, UDP, MQTT, HTTP, OPC UA, BACnet		
VPN	PPTP, L2TP, GRE, IPSEC VPN (IKEv1/IKEv2), OPENVPN, Supports CA digital certificate		
Secondary Development	OpenWrt DPKG tools available, Node-Red, Python, with SDK support	Python, C/C++ SDK support	

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Connect with us

E: info@elastel.com

T: +86-186 5001 3234

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About Elastel

Elastel Technologies Co., Ltd is a global design and manufacturing company in Industrial IoT. Rely on our professional R&D teams and continuous innovation, we have developed series proven IoT products which help our customers solve their concrete issues.

Founded in 2018, Elastel has grown steadily. Today Elastel has 35+ team members with deep IoT expertise and industry knowledge with over 300 customers across many industries all over the world. We love to pragmatically work with you to find the best solution for your challenge.