



Ectron
CORPORATION®

Leading the field in Industrial IoT by providing First Mile Solutions to the Cloud

using Edge Computing with AI/ML capability including solutions covering the entire manufacturing value chain from first sensor touchpoints to the Cloud

PRODUCTS:

- SmartEYE™ PaaS
- Edge Computers with AI/ML Capability
- Engine/Machine Monitor
- Computer on Modules
- Power Supply Cards

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Ectron Corporation is an 8(a) certified, woman-owned, small business

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ISSUES THAT KEEP MANAGERS AND OWNERS UP AT NIGHT

When should I schedule maintenance for my machines?

Can I produce the same quality and volume of product for less cost?

How efficient are my employees? Can I give them more flexibility and still manage costs?

Can I use power/energy more efficiently without reducing productivity, output, and growth?

How do the environmental factors in the facility affect my product quality?

Is my product quality consistent?

I would like to run what if scenarios easily without all the paperwork, time and effort to see what happens if I tweak something at my company or operations?



This requires a lot of data points, time and effort, plus things keep changing all the time!!

To answer these questions I'd need to monitor every inch of my factory, every second of the day, but I don't have the staff and I am just one person.

Even if I had the data, I need it interpreted and compared against KPIs and industry wide best practices.



SmartEYE™ is the answer!

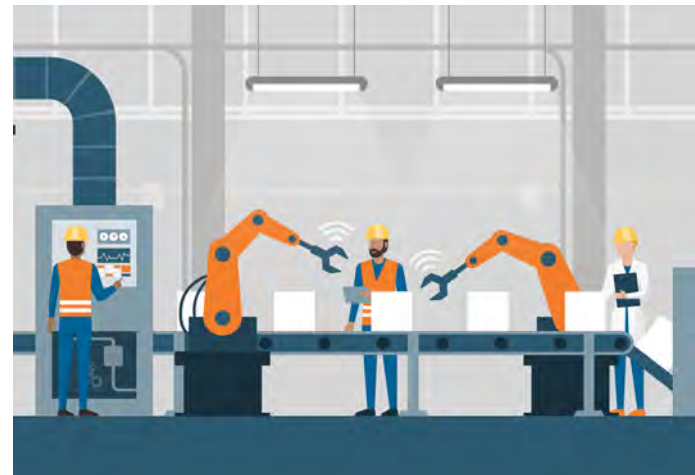
SmartEYE™ is an IIoT based factory 4.0 Paas (Platform as a Service) that provides a 360 degree view of operations including machines, personnel, processes and energy use. SmartEYE™ can be deployed for one or more machines, manufacturing lines, cells or the entire plant. In other words, it can be scaled up or down to match client requirements and budget.

With SmartEYE™, you get data and analytics on the edge, so you can monitor up to several hundred data points in real time, allowing you to make accurate and precise decisions that facilitate OPEX reduction, product improvement and revenue growth. You tell us what problem you are trying to solve, what data you need to solve it and we will create a custom SmartEYE™ solution. We even have a no upfront fee subscription contract option.

- ✓ Installed and online in a matter of weeks
- ✓ No changes to your equipment
- ✓ Customized to fit any budget
- ✓ No interruptions to production

Ectron provides everything you need including:

- Over 1,800 sensor options
- AI/ML factory floor rugged gateway computers
- Networking and Cloud connectivity
- Access to Microsoft Azure (as an option)
- Custom KPI and Dashboard Development
- Business Intelligence Integration with multi level dashboards
- Deployment and Maintenance



MORE INFORMATION

EDGE COMPUTERS WITH AI/ML CAPABILITY

SERVER CLASS COMPUTER—ECT-MAN

The ECT-MAN is a multipurpose ruggedized industrial server class 6 core Xeon based computer that can be deployed on the factory floor or in outside junction boxes, as a mobile computer in ambulances first responder vehicles or other areas. Rugged MIL versions can be made available based on volume and applications. It works at 20V to 30V (24V Industrial) supplies.

Standard configuration: WiFi, AI/ML Coprocessor, 1 TB of SSD, 16 GB memory



APPLICATIONS

- Control Computer
- IIoT Edge Computer
- Edge IIoT Gateway
- Factory Monitor
- Building Automation
- Mobile Server
- Remote Monitor
- SmartEYE™

FEATURES

- Operating System: MS Windows 10 IoT Enterprise LTSC
- Azure IoT qualified for connectivity to Microsoft Azure
- Edge AI/ML co-processor
- OT – IT bridging
- 802.11 WiFi interface built in
- 4G/LTE option and WiFi with GPS
- Connectivity: Quad USB 3.0, Dual USB 2.0, Quad Ethernet, HDMI
- Processor: Intel Xeon 6 Core, CM238, PCH, GT2, Rapid Shutdown, Industrial grade
- Storage: 1 TB or 2 TB SSD storage
- Memory: 16 GB ECC DDR4
- Operating Voltage: 20 to 30V
- Uncooled
- Operating Temperature: – 40 to +85°C
- 95% non-condensing humidity
- Panel/Flange mountable
- Enclosed in an IP65 enclosure
- 256 GB -SLC or MLC

[DATA SHEET](#)

EDGE COMPUTERS WITH AI/ML CAPABILITY

EDGE COMPUTER—ECT-ECI

The Edge Computer ECT-ECI is a multipurpose ruggedized industrial computer that can be deployed on the factory floor or in outside junction boxes. It works at 20V to 30V (24V Industrial).

The uses are: HMI Computer, Control Computer, IIoT Gateway.

Protocol bridging between the IT and OT network, converts Ethernet/IP, Profinet protocols into TCP/IP

FEATURES

- Operating System: MS Windows 10 IoT Enterprise LTSC
- Azure IoT qualified for connectivity to Microsoft Azure
- Edge AI/ML capability
- HALT, HASS tested
- OT – IT bridging
- 802.11 WiFi interface
- Optional Radios: 4G/LTE instead of WiFi
- Connectivity: Dual USB, Dual Ethernet, HDMI
- Processor : Intel Core i3 7100E, CM238, PCH, GT2, Rapid Shutdown, Industrial grade
- Storage: 128 GB or 256 GB SSD
- Memory: 16 GB ECC DDR4
- Operating Voltage : 20 to 30V
- Uncooled
- Operating Temperature : – 40 to +85°C
- 95% non-condensing humidity
- DIN rail mountable
- Enclosed in an IP67/68 enclosure

APPLICATIONS

- Control Computer
- IIoT Edge Computer
- Edge IIoT Gateway
- Machine/Engine Monitor and HMI computer
- Building Automation
- Industrial Vision
- SmartEYE™



OPTIONS AND ACCESSORIES

- 4G/LTE radio (cellular charges may apply) instead of wifi
- 128 GB SSD standard, option of 256 GB SSD
- SLC SSD option

CONFIGURATION /ORDER CODES

- ECT-ECI-HMI
- ECT-ECI-CC
- ECT-ECI-GW

with storage options:

- 125 GB – SLC or MLC
- 256 GB -SLC or MLC

[DATA SHEET](#)

ENGINE/MACHINE MONITOR



ENGINE/MACHINE MONITOR—ECT-EMM

The ECT-EMM is an embedded computer that can be directly attached to machinery to provide high speed analytics and in applications like rotating machinery precision frequency monitor that provides high-speed control and protection for a variety of mechanical devices. The ECT-EMM is certified to operate in conditions of -40 C to 85 C and also provide the ability to drive solenoids or relays to turn things on and off, it also provides both HART connectivity on the 4 to 20mA lines as well as EthernetIP connectivity.

FEATURES

- Fast response, 4 ms typical
- Outputs include 3 relays plus 4-20 mA
- HART and EthernetIP connectivity
- Rugged package endures high vibration/shock
- Sophisticated algorithm determines shut-down
- Programmable
- Non-failsafe reliability of 5,500,000 hours at 85°C
- 3 Programmable relays to turn solenoids on/off

Ectron can custom configure the ECT-EMM for your application as an OSM, Engine/Machine Monitor, Embedded computer for any application where a rugged, reliable solution is required.

APPLICATIONS

- Monitoring gas turbine engines as an OSM (Over-speed Monitor)
- Monitoring reciprocating engines and other mechanical systems as well
- An Embedded computer/Control that direct attaches to machinery in harsh environments.

In the use of the ECT-EMM for Turbines, Rotating Machinery and Re-ciprocating Engines, input frequency signals are normally from mag-netic or optical sensors that detect the movement of the machine's operation which usually is the speed of rotation of an engine. The millisecond response of the ECT-EMM is mandatory for many rotating devices such as gas turbines.

HIGH-RELIABILITY COMPONENTS

- Internal semiconductor devices are rated from -55°C to +125°C.
- Fail-safe circuitry is incorporated such that if there is component failure, that failure must almost always result in a fail-safe condition.
- The mean time before a non-fail-safe condition exceeds 5,500,000 hours at 85°C.

CERTIFICATIONS

- CE and NEC
- ATEX Cat 3, Zone 2 hazardous area
- CSA Class 1, Div 2 Groups A, B, C, D

SAFETY CHECKS

- Checks of set point memory, processor RAM, and processor program memory are performed at startup and continually during operation
- The processor's clocks are monitored while in operation and compared with reference to a secondary oscillator
- A hardware watchdog continuously monitors firmware operation.
- When configured as an OSM (Over Speed Monitor) Speed at last overspeed event, and highest speed since last overspeed event are stored in non-volatile memory for forensic analysis of overspeed events
- As an OSM the input Signal The acceptable frequency range is from 150 Hz to 25,000 Hz. algorithm such that the monitored result is still able to accurately determine the engine's rpm.

Output 4 mA to 20 mA Signal This signal from the ECT-EMM is both highly accurate (0.1%) and fast responding so it can serve as an on-line check of the control system of an engine. For grounding considerations, note that the output common of the 4-20 mA signal is connected to input power common. A separate common lead should be used for the 4-20 mA signal so that power current fluctuation will not mix with the signal current.

[DATA SHEET](#)

COMPUTER ON MODULES

DGCB 3045-30 and DGCB 3045-45

The Digital Controller Boards (DGCBs) are Industrial Grade (-40° to 85°) COM (Computer On Module) that have been built to IPC class standards. The small form factor design (72mm x 62 mm) allows easy integration with existing products in various form factors such as Com Express or PCIe 104 or others. Powerful platform offering an FPGA coupled with a 1 GHz Dual core ARM processor with Neon Extensions.

FEATURES

- Powerful credit card sized computer that is 72 mm x 62 mm
- Xilinx Zynq 7030 or 7045, Dual Core ARM @ 1GHz
- NEON™ SIMD Engine (Single/Double Precision Floating Point)
- RSA, AES and SHA 256b Authentication for Secure boot
- 125K Logic Cells, 400 DSP Slices
- 2x UART, 2x CAN 2.0B, 2x I2C, 2x SPI
- 2x USB 2.0(OTG) with PHY
- 2x Tri-Mode Gigabit Ethernet with PHY
- 2x SD/SDIO, 4 SERDES
- Dual 12-bit 1 MSPS ADC, 18 usable differential inputs
- PCIe Gen 2 x4 interface
- 512MB DDR3 Memory

OPTIONS

IoT Ready, Azure cloud connectivity option with LINUX kernel available on request.



APPLICATIONS

- Control Computer
- Embedded IoT
- Signal Processing
- Machine Control
- Edge IIoT Applications
- Building Automation
- Industrial Vision

[DGCB 3045-30
DATA SHEET](#)

[DGCB 3045-45
DATA SHEET](#)

POWER SUPPLY CARDS



EMBEDDED POWER SUPPLY WITH BATTERY CHARGING—ECT-114-PWR

The ECT-114-PWR Power Supply board delivers efficiency as high as 90% at 75 Watts, lowering input power requirements as well as heat generation. Operation of -40°C to $+85^{\circ}\text{C}$ is tested and guaranteed. Low-profile, surface mount components reduce susceptibility to shock and vibration. The module is engineered for rugged applications in Industrial, Defense, Automotive including on-vehicle and test equipment markets.

APPLICATIONS:

- Industrial, Medical and Test Equipment
- General Purpose Wide VIN Regulation
- Factory and Building Automation
- Smart Grid and Energy
- Automotive and Defense applications
- Test and Measurement equipment
- COTS MIL applications

FEATURES

- 75 watt embedded Power Supply with battery charging
- 18V to 36V DC Input Range
- Cost-effective, highly flexible power solution
- For use with Microprocessor based systems for control
- Programmable battery charging option for NiMH, NiCAD batteries with upto 16 cells
- Multiple output options:
 - +12V DC, 70 Watts
 - +5V DC, 3 Watts
 - +3.3V DC, 1.5 Watts
 - +/-15V DC, 1.5 Watts
- MIL-STD-810G Compliant
- Effective noise suppression for DC switching
- EMI suppression filter supporting large current, wide frequency
- Operating Ambient Range: -40°C to $+85^{\circ}\text{C}$
- **Customization Available**

[DATA SHEET](#)

POWER SUPPLY CARDS

PCIe104 POWER SUPPLY CARD— ECT-PCIe104-PWR

The PCIe 104 Power Supply board delivers efficiency as high as 90% at 75 Watt, lowering input power requirements as well as heat generation. Extended temperature operation of -40°C to $+105^{\circ}\text{C}$ is tested and guaranteed. Low-profile, surface mount components reduce susceptibility to shock and vibration. The module is engineered for rugged applications in Industrial, Defense, Automotive including on-vehicle, markets.

FEATURES

- 75 Watts PCIe 104 Power Supply
- 18V to 36V DC Input Range
- Cost-effective, highly flexible power solution
- Multiple output options:
 - +12V DC 48 Watts
 - +5V DC, 20 Watts
 - +3.3V DC, 8 Watts
- MIL-STD-810G Compliant
- Effective noise suppression for DC switching
- EMI suppression filter supporting large current, wide frequency
- Operating Ambient Range: -40°C to $+105^{\circ}\text{C}$
- Meets EN55011 Class B Radiated EMI Standards
- Shock and Vibration Tested to MIL-STD-883D
- **Customization Available**

[DATA SHEET](#)



APPLICATIONS:

- Industrial, Medical and Test Equipment
- General Purpose Wide VIN Regulation
- Factory and Building Automation
- Smart Grid and Energy
- Automotive and Defense applications
- Test and Measurement Equipment
- COTS MIL applications