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2017 Q3-4

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CASEY ATHERTON
Field Application Engineer

RODNEY HILL
Mechanical Engineer



Logic Supply was founded out of a love for technology and a determination to build a place where employees operated as owners and customers got what they were promised.

These founding impulses have yielded, over the years, essential elements of our company story: a fanatical commitment to product reliability, a core-values driven culture, and the direct to customer model that delivers built-to-order hardware in days.

But the real excitement begins when our story transitions into yours. See what the creative minds at Sparklike, Genea Energy and Megabots have built using Logic Supply hardware (p13, 25, 47)

What can we do to enable your breakthroughs? Read on, reach out and let's get started.

—The Logic Supply Team

FEATURES

COMMERCIAL

Reliable performance, compact footprint.



INDUSTRIAL

Hardshell™ Fanless Technology.



Logic Supply Modular OEM Services

Faster. Easier. Better. 05



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RUGGED

Fanless systems that resist dust, extreme temps & vibration.



RACKMOUNT

Energy efficient and ideal for networking or data acquisition.

PANEL PC

Ultra-reliable touchscreens for kiosk, POS and HMI applications.



COMPONENTS

Bundle motherboards with RAM, storage and more.



DI Series

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DA Series

Affordable Rugged Computing 51



DC Series

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DE Series

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DS Series

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POC Series

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Nuvo Series

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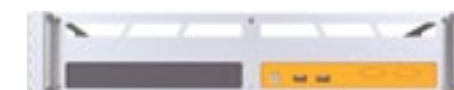
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Logic⁺

Modular OEM Services

Faster. Easier. Better.



Prototyping



Engineering



Branding & Labeling



Imaging & BIOS



Testing & Certifications



Production



Inventory & Fulfilment



Technical Support



Lifecycle Management



Financing



Prototypes In Days, Not Weeks



Engineered To Your Specifications



Customized To Your Brand



Preloaded With Your Software Image



Certified For Your Application



Carefully Assembled & Rigorously Tested



Consigned & Drop Shipped To Your Customers



Protected By Locally-Based Support



Actively Managed Lifecycles



Financed Through Logic Supply

Turn the page for the
Full Services Menu





Logic+ Services

Logic+ Services have you covered from prototyping through distribution. Work with our team of experienced hardware professionals to create the perfect service package to ensure the success of every aspect of your project.

	<div>Service</div> <div><div>PROTOTYPING</div><div><div><input checked="" type="checkbox"/> Needs Analysis & Hardware Recommendation</div><div><input type="checkbox"/> TryLogic 30-Day Risk Free Prototyping [▲]</div><div><input checked="" type="checkbox"/> 5-Day Prototype (Standard)</div><div><input type="checkbox"/> 3-Day Expedited Prototype</div><div><input type="checkbox"/> 1-Day Rush Prototype</div></div><div><div>Validation & Application Engineering</div><div><div><input type="checkbox"/> Customer Component Compatibility Check</div><div><input type="checkbox"/> Thermal System Testing</div><div><input type="checkbox"/> Application Software Testing</div></div></div></div>
	<div>Service</div> <div><div>TESTING & CERTIFICATIONS (Tested As IT Equipment)</div><div><div><input type="checkbox"/> FCC Emissions Testing</div><div><input type="checkbox"/> CE Emissions & Safety Testing</div><div><input type="checkbox"/> CE + CB Emissions & Safety By Certified Body</div><div><input type="checkbox"/> UL Listing</div><div><input type="checkbox"/> UL Annual Renewal</div><div><input type="checkbox"/> Customer Defined Testing</div><div><input type="checkbox"/> CCC Certification</div><div><input type="checkbox"/> CCC Annual Renewal</div></div></div>

**Requires System Purchase. Additional charges may apply if testing exceeds 5 hours. |*
***Pricing dependent on product and testing requirements. | ***100 Unit MOQ. Select Systems Only*
[▲] Terms & conditions apply.



Discuss Your
Project Needs With A
Hardware Specialist

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4G For IoT

An Interview with Murat Erdogan

With more devices joining the Internet of Things—about 5.5 million every day according to some researchers—it's important for machine builders and IoT innovators to determine the most effective and efficient way to connect

The Extrovert modems are ideally suited for use in remote or mobile installations where wired internet or Wi-Fi are not available.

systems to each other and to the cloud. Whether you're looking to provide versatile connectivity, failover protection, mobile data handling or enhanced data security, identifying the right connectivity model is paramount.

Over the past year, Senior Product Manager Murat Erdogan and his team have been working with leaders in the cellular connectivity industry, as well as cellular carriers from around the world, to develop our new line of Extrovert 4G LTE modems. The goal was to create a solution

that would save IoT developers and device builders the significant time and money necessary to certify devices to connect to the 4G network. We asked him to share some of his experiences, talk about the motivations behind the Extrovert line, and discuss what the future holds for cellular connectivity and wireless communication in general.

What are the key features of the new Extrovert Line of 4G Modems? Which issues does the technology address?
Our Extrovert Line was created to help

Extrovert-compatible systems offer a fully integrated solution, eliminating the risks of external dongles and modems, which are a reliability and security concern for our clients.

The growth drivers in our industry continue to be the expanding Industrial IoT sector and the need for smaller, more powerful, more connected hardware.

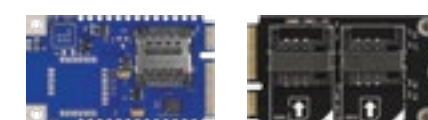
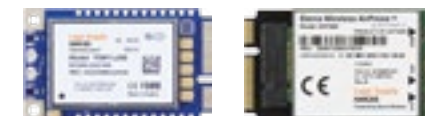
What inspired you to make the modem SIM-card based?

We wanted to give customers the option to choose their own carrier and arrange service in the way that was most convenient to them. By providing a SIM

OEMs and device builders connect to 4G LTE without the need for the high cost and significant time investment necessary to certify a device for use on the cellular network (up to \$50,000 and as much as 6-12 months). By combining an on-board SIM card slot with modules from ublox and Sierra Wireless, we're able to integrate 4G connectivity into any of our systems that provide expandability via Mini PCIe, and offer the requisite antenna connections.

socket they're free to make their own decision on cellular service provider, particularly in the case of the NWK200 modem, which is compatible with a long list of global cellular providers.

Additionally, a SIM card slot is required to attain PTCRB certification for end use devices. Cellular carriers all have their own SIMs which allow them to monitor access to their networks and assign particular services and data plans to users.



NWK100

NWK200

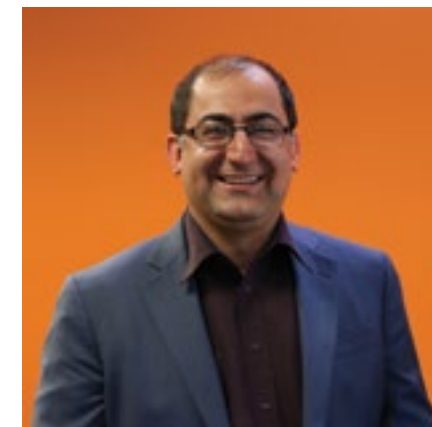
Extrovert modems from Logic Supply provide connectivity to 4G networks globally.

For which environments and applications is the modem ideally suited?

The Extrovert modems are available exclusively in compatible Logic Supply systems and are ideally suited for use in remote or mobile installations where wired internet or Wi-Fi are not available. The Extrovert line also provides reliable failover support for mission critical applications where an interruption in connectivity can not be tolerated.

What's next for wireless connectivity?

In terms of connectivity, 5G is on the horizon and we're already looking at how that will impact the IPC and Industrial Internet of Things industry. In general IoT (and IIoT) devices have a wide range of data needs. In addition to the top speeds of the latest generation of cellular connectivity, we've had clients



Murat Erdogan

Murat is Logic Supply's Senior Product Manager. Prior to joining Logic Supply, Murat spent 10 years at Intel, working with the Desktop Motherboard and Mobile Products groups and has more than 20 years of experience in various roles throughout the tech sector.

asking about earlier generation cellular compatibility, so we're investigating methods to most effectively enable 1, 2 and 3G connectivity as well. We're also looking into LoRa as a mid-range communications protocol that enables longer range connectivity than Wi-Fi and Bluetooth without the cost of cellular devices and services.

The growth drivers in our industry continue to be the expanding IoT sector and the need for smaller, more powerful, more connected hardware. From a general hardware standpoint, we're looking forward to unveiling a number of new small form factor computers in the coming few years that leverage The Cloud, The Fog and The Edge computing to provide innovators with the hardware tools they need to build the next generation of smart devices. ■

COMMERCIAL LINE

Reliable performance, compact footprint.
Actively cooled, small form factor PCs.



Active Cooling



Energy Efficient



Versatile Mounting



Powering Innovation

Sparklike: Insulated Glass Testing

Sparklike is the developer of the world's first non-destructive argon analyzer for insulated glass windows and doors, the Gasglass Laser. Since 2001, their products have been sold worldwide, and are used daily by the world's leading testing laboratories and insulated glass and window manufacturers.

The Sparklike Gasglass product line is based on the company's proprietary and patented technology, which allows users to test the concentration of insulating gas inside insulated units without having to break them. This unique non-invasive testing allows Sparklike customers to deliver pre-tested products, test already installed units or perform long term testing at their production facilities.

Project Needs

In 2015 Sparklike launched the Gasglass Laser to help in solving many of the testing challenges faced by insulated glass manufacturers. The new technology

The computer we were going to use in the Gasglass Laser needed to be small but still have multiple hardware connections and operate effectively.

allows for the testing of complicated structures, such as energy efficient triple glazed units. The Gasglass Laser fires a beam into the insulated glass (IG) and then measures the reflected beam, testing for the amount of oxygen, argon, krypton, xenon present in the insulation layer. For the Gasglass Laser, Sparklike needed a small industrial PC that would handle the necessary data processing inside the gas fill analyzer.

"The computer we were going to use in the Gasglass Laser needed to be small but still have multiple hardware connections and operate effectively," says Kai Niiranen, R&D Engineer at Sparklike. "It also needed to be reasonably priced and stay cool

without any additional fan. Mainly our analyzers are used in a factory setting, and thus the device and its parts need to tolerate quite harsh environmental factors like dust, heat and vibration. Our analyzers are typically serviced once a year, so our clients need to be able to rely on the hardware to function properly day to day."

The Logic Supply Solution

Working with European Account Manager Raymond Bruitzman, Kai and the team at Sparklike settled on the ML300 Industrial PC platform for the Gasglass Laser project. "We found that the Logic Supply ML300 was a perfect fit for the Gasglass product," said Niiranen. "It was easy to interface with the analyzer and solved our hardware challenges. The system is small, robust and easy to integrate into the device that we were developing. It has all the power we need in a compact package and gives us room for further development on future projects." ■

We recently had the chance to speak with Kai Niiranen, R&D Engineer at Sparklike, who worked with our European team on the company's new Gasglass Laser testing device. The system is used to measure gas concentrations inside insulated gas (IG) products, avoiding the previous need to break or compromise the glass. We spoke with Kai about what Sparklike does and how the Gasglass Laser is revolutionizing IG testing, using our ML300 Industrial Fanless NUC PC at its heart.

Who is Sparklike and what do you do?

Sparklike is a leading manufacturer for non-invasive insulating glass gas fill analyzers. In 2015, we launched a new commercial product, that utilizes laser technology to solve the issues of currently used methods to test insulating glass gas concentration. The new technology allows testing of complicated structures, such as energy efficient triple glazed units. This brings the level of quality assurance of these high performing glazing units on par

with advanced product expectations.

What is the computer, in this case the ML300, responsible for inside the Gasglass Laser device?

The ML300 runs our measuring control and analyzing software over a Windows Embedded 7 platform. This means controlling the drivers and engines, collecting data from the laser, running the data analysis and user interface and communicating over an Ethernet and/or USB connection to indicate the concentrations of gasses inside the insulated glass. This obviously all happens in a very short period of time, and everything needs to be well synchronized. Mainly our analyzers are used in an factory setting, and thus, the device and its parts need to tolerate quite harsh environment like dust, heat and vibration.



The Sparklike Laser measures oxygen, argon and other gasses present in the insulation layer.

When creating a solution like this, what are the primary hardware requirements?

When looking for hardware solutions, we look at the problem first hand, and then look for solutions at hand that can be used to solve them. In terms of finding an industrial PC, we looked for a solution that was small, reasonably priced and passively cooled. It also needed to have the right connections to be able to interface with our analyzer. In the case of the ML300 which we chose for the Gasglass Laser, the size was right, it had all the necessary plug-ins, and enough power in a compact package. There are still a lot of options left to allow it to meet the needs for future development as well. ■

MC500

A Versatile Mini-ITX PC

A feature-rich system in a compact, durable enclosure, the MC500 combines the popular Mini-ITX form factor with a carefully engineered, actively cooled chassis.



Commercial MC500 Series



Right Size For The Job

Small form factor doesn't have to mean limited capabilities. The MC500 Series combines the power of a traditional PC and the flexibility of a compact, all steel chassis.



Built For Commercial Use

With a range of Intel processor options, and long lifecycle components, the MC500 Series is both flexible and efficient.



Interface With Anything

The MC500 Series was built with commercial applications in mind, offering a wide range of modern and legacy connectivity.



Cool Under Pressure

The MC500 Series utilizes cross-case ventilation to keep fan noise to a minimum while providing the system with the ability to operate 24/7 without failure.



EMI & ESD Protected

With its durable zinc coated steel construction, the MC500 Series resists corrosion and rust. Double right angle folds at interfacing edges reduce EMI and improve EMC performance.



Versatile Configurations

The MC500 Series lends itself to limitless configurations with support for nearly every Mini-ITX motherboard. Eight mounting points support additional drives for storage intensive applications.

Models

Detailed model specs on p21



Commercial Bay Trail Mini-ITX
MC500-10



Commercial Haswell Mini-ITX
MC500-30



Commercial Skylake Mini-ITX
MC500-51



MC600

Mini-ITX With Expansion

Easy to customize with ample room for expansion, the MC600 Series features Mini-ITX systems specifically engineered for commercial applications.



Commercial MC600 Series



Durable, Expandable, Remarkable
With a host of expansion options, the MC600 Series lets you choose the right combination of features for your unique application.



A Range Of Capabilities

From energy efficient Intel Atom processing, to highly capable Xeon server models, the MC600 Series can be configured to tackle any task.



Create The System You Need

Whether your project demands specialized I/O, more storage or additional wireless capabilities, the MC600 Series is engineered to be the heart of your application.



Keep Your Cool

Cross-case ventilation, aided by muffled MagLev fans, keep the fan noise to a minimum while providing highly reliable operation.



EMI & ESD Protected

The MC600 Series safeguards against electromagnetic interference with durable plated steel construction. Double right angle folds at interfacing edges reduce EMI and radio frequency interference.



Made For Modification

Fitted with two expansion slots, the MC600 Series is capable of housing extra storage, additional I/O, or expansion cards to match your needs. An optional hot swap bay or additional internal mounting points can be utilized for storage intensive applications.

Models

Detailed model specs on p22



Commercial Haswell Mini-ITX
MC600-50

4G Capable



Commercial Xeon Server
MC600-51



Commercial Skylake Mini-ITX
MC600-52

4G Capable

MC850

Small Footprint, Big Performance

Offering advanced Intel processing, compatibility with the latest generation Nvidia graphics cards and an integrated power supply, the MC850 Series is as powerful as it is eye-catching.



Commercial MC850 Series



Performance Focused

Designed specifically for computing-intensive applications, the MC850 Series offers a range of Intel Processing options including Skylake and Kaby Lake Core i7 and even Xeon CPUs.



Integrated Power

Eliminating the need for external adapters or power bricks, the MC850 Series accommodates direct-plug power with an integrated 300W PSU.



Dedicated Graphics

The MC850 Series supports full height PCIe expansion, including the latest generation of advanced graphics cards, a feature rarely seen in a system with such a small footprint.



Advanced Cooling

A rear-mounted fan provides the MC850 Series with optimal "V" pattern airflow to ensure efficient, full-system cooling over all thermally sensitive components, allowing for optimal performance even under a heavy computing load.



More Than A Pretty Face

Far more visually appealing than most other industrial PCs, while offering superior component protection to standard commercial systems, the MC850 Series manages to be both beautiful and highly functional.



No Need To Compromise

With its incredible performance to volume ratio, the MC850 Series has been designed to accommodate the high performance components you need to configure your ultimate small form factor industrial PC without sacrificing capabilities.

Views

Detailed model specs on p22



Front






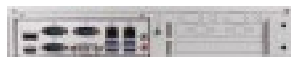



Side



Rear

** Shown with optional graphics card*

LOGIC
SUPPLY

Specifications							
	MC500-10	MC500-30	MC500-51	MC600-50	MC600-51	MC600-52	MC850-50
Series	MC500 Series			MC600 Series			MC850 Series
Processor	Intel Celeron J1900	Intel Celeron Intel Pentium Intel Core i3/i5/i7	Intel Celeron Intel Pentium Intel Core i3/i5/i7	Intel Celeron Intel Pentium Intel Core i3/i5/i7	Intel Xeon E3	Intel Celeron Intel Pentium Intel Core i3/i5/i7	Intel Celeron Intel Pentium Intel Core i3/i5/i7 Intel Xeon
Processor Speed	2GHz	2.2 ~ 2.7 GHz	2.3 ~ 3.3 GHz	2.2 ~ 2.7 GHz	2 ~ 2.3 GHz	2.3 ~ 3.3 GHz	2.3 ~ 3.8 GHz
Processor Generation	Bay Trail	Haswell	Skylake Kaby Lake	Haswell		Skylake Kaby Lake	Skylake Kaby Lake
Processor Cores	4	2 ~ 4		2 ~ 4	4	2 ~ 4	2 ~ 4
Graphics/GPU	Intel HD Graphics			Intel HD Graphics	ASPEED AST2300	Intel HD Graphics	Intel HD Graphics nVidia GTX 1060 (optional)
Memory	DDR3L SO-DIMM (non-ECC) Up to 8GB 1333 MHz	DDR3 SO-DIMM (non-ECC) Up to 16GB 1600 MHz	DDR4 SO-DIMM (non-ECC) Up to 32GB 2133 MHz	DDR3L SO-DIMM (non-ECC) Up to 16GB 1600 MHz	DDR3 DIMM (ECC) Up to 16GB 1600 MHz	DDR4 SO-DIMM (non-ECC) Up to 32GB 2133 MHz	DDR4 SO-DIMM (non-ECC) Up to 32 GB 2133 MHz
Rear I/O	2 USB 2.0 ports 2 USB 3.0 ports 1 VGA port 2 Gb LAN ports 1 DVI-I port 2 COM ports (RS-232) 1 PS/2 keyboard port 1 PS/2 mouse port 3 Audio jacks (mic-in, line-out, line-in)	1 DisplayPort 1 HDMI port 2 Gb LAN port 4 USB 3.0 ports 2 Audio jacks (mic-in, line-out)	1 HDMI port 1 DisplayPort 1 VGA port 4 USB 3.0 ports 2 Gb LAN ports 2 COM ports (RS-232/422/485) 2 Audio jacks (mic-in, line-out)	1 HDMI port 1 DisplayPort 1 DVI-I port 4 USB 3.0 ports 2 Gb LAN ports 3 COM ports (RS-232/422/485) 2 Audio jacks (mic-in, line-out)	1 PS/2 port 2 USB 2.0 ports 2 USB 3.0 ports 2 Gb Ethernet ports 1 IPMI port 1 COM port (RS-232) 1 VGA Video port 1 UID light with switch	1 HDMI port 1 DisplayPort 1 VGA port 4 USB 3.0 ports 2 Gb LAN ports 2 COM ports (RS-232/422/485) 2 Audio jacks (mic-in, line-out)	1 HDMI port 1 DisplayPort 1 VGA port 2 Gb LAN ports 4 USB 3.0 ports 2 COM ports (RS-232/422/485) 2 Audio jacks (mic-in, line-out) 1 DVI-D port (optional) 1 DisplayPort (optional) 1 HDMI port (optional)
Front I/O	2 USB 2.0 ports Power button			2 USB 2.0 ports Power button			2 USB 2.0 ports Power button
Expansion Options	-	-	-	PCIe x16 PCIe Mini Card (full height)	PCIe x16	PCIe Mini Card (full or half height) PCIe x16	PCIe Mini Card (full height) PCIe x 16
Storage Options	2.5" HDD/SSD		2.5" HDD/SSD mSATA	2.5" HDD/SSD 3.5" HDD	2.5" HDD/SSD	2.5" HDD/SSD mSATA	2.5" HDD/SSD mSATA
LAN Controller	Realtek RT8111G-CG	Intel I210-AT Gb Intel I217LM GbE with Intel AMT	Intel I210 GbE Intel I219V	Intel I210 GbE Intel I217LM GbE with Intel AMT	Intel I210 GbE	Intel I210 GbE Intel I219V	Intel I219LM GbE Intel I210 GbE
Input Voltage	12 V	19 V	12 V	12 V			100 - 240 VAC
Power Input	DC jack			DC jack			C13 - C14 Coupler
Operating Temp. Range	0°C ~ 50°C			0°C ~ 50°C			Configuration dependent
Dimensions (WxHxD)	190 x 62 x 196 mm			334 x 64 x 198 mm			230 x 146 x 241.5 mm
Mounting Options	DIN-mount VESA-mount Wall-mount			DIN-mount Wall-mount			DIN-mount Wall-mount
Regulatory Information	CE standards applied (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC - Assembled using FCC certified components RoHS			CE standards applied (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC - Assembled using FCC certified components RoHS			CE standards applied (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC - Assembled using FCC certified components RoHS

INDUSTRIAL LINE

The latest in cutting-edge fanless and ventless design.
Choose Hardshell™ Fanless Technology to ensure reliability.



Fanless



Expansive I/O



Aluminum Chassis





Powering Innovation

Genea: Advanced Property Management

Modern commercial buildings offer a host of automation possibilities. As technology becomes an integral part of every wall, floor and ceiling, managing those complex systems becomes increasingly challenging. The team at Genea is creating innovative tools to help make after hours property management easier for everyone.

We spoke with Brian Haine, Director of Technical Services at Genea, about how cloud services are changing the way property managers and tenants interact with each other and with building automation systems.

Can you give us a quick introduction to yourself?

I have been in the energy management field for about 25 years and worked for several companies within that time as a service and commissioning technician. For the past 10 years I've been with Genea, where I've become their resident Energy Management System guru.



Genea software solutions, ACS Cloud and AMRB.

Currently, I serve as the director of the Technical Services Team where I focus on supporting all of our customers' technical needs 24/7, 365 days a year.

How has Genea evolved in recent years?

For many years, Genea had one core product—the After Hours Control System (ACS Cloud). Over time as we perfected this service, we went to our customers and asked, "What else can we help you with?" An astounding number of our customers complained about their pain points with meter collection and the tenant billing that comes along with it. This is how our second product, Automated Meter Reading and Billing (AMRB) became a part of our service offering.

What are some of the primary hardware challenges that you run into?

One of our unique hardware challenges is that we need different types of multiple ports all on the same device. Along with this, we need R & R: Reliability and Reasonable price. Finding a company with a quick turn around and a knowledgeable tech team isn't easy!

It sounds like you've dealt with challenges sourcing hardware in the past.

Yes! Ahh. With the type of support we needed, one company could not supply us without an 8 week lead time on any

The best thing about Logic Supply was that we were able to try out a couple of systems before we made our final decision and had full access to tech support which we used—a lot!



TOP



FRONT



BACK

Genea teamed up with engineers at Logic Supply to bring their custom appliance to life.

size order. Perhaps worst of all, they changed the components without telling us. They informed us of the EOL for our device two days before the date. The tech support was non-existent and the sales team did not return calls or emails for weeks, if at all. You wonder how these companies stay in business!

Can you talk a bit about your new hardware platform?

We will be using Logic Supply hardware as the gateway between Genea and customer EMS (Energy Management System) networks. The computer will act as part of our proprietary interface that will enable us to provide after hours HVAC and lighting for commercial office tenants and automatically read meters as part of our ACS Cloud and AMBR services.

Additionally, it will interface with our 24/7 monitoring and alert system.

What makes Genea's ACS Cloud special?

ACS Cloud is special because tenants can take control of their comfort after normal lease hours and request HVAC and lighting services with an app. Best of all, if for any reason someone needs us to input a request, or they are having any issues with their services, they have a live person at Genea to help them no matter the day or time. Since we have a monitoring system for all of our customers, we often know about any technical problems in a building before the engineer does.

What led you to choose the particular Logic Supply PC you're using?

Over the years, we tried several Logic Supply PCs on our own but couldn't find the one that met all of our criteria. Your team walked us through the selection process and gave us several options with pricing. The best thing about Logic Supply was that we were able to try out a couple of systems before we made our final decision and had full access to tech support which we used a lot!

What's one important aspect of the work your company does that often goes overlooked or underappreciated?

I would say the customer support team. Our 24/7 support is truly one of the best in the industry and we take a lot of pride in it. After all, it was the secret sauce to growing our business!

What differentiates Genea from your competition?

Other than no one else having 24/7 customer support, we are one of the only companies that is solely dedicated to making our product work across all EMS platforms.

What type of clients use Genea products and services? Who's not using you that should be?

Most of our customers are commercial real estate owners and property management teams. Anyone who is still manually collecting meter values and using a spreadsheet to bill tenants needs to call us! Also, a lot of office properties underutilize marketing tools like websites and apps to communicate with their tenants and lease available office space, which is why we offer a website and app service as well.

What's next for the property management industry?

One of the primary growth drivers in our industry is obviously technology. Any technology that removes any sort of manual processes for property teams will continue to be increasingly valuable. But most of all, just good old fashioned customer service. There are a lot of cool products out there, but not very many of them are backed by reliable support for the people who use them. This has been a vital component of our business and it's what we look for when we do business with other companies. ■



Genea uses Logic Supply computers for their customer solutions and for in-house workstations.

CL100

Anything, Anywhere.

Ultra-small, yet highly capable, the CL100 is the ubiquitous computing platform ideal for any task.



Industrial CL100 Series



Power In The Palm Of Your Hand

Measuring just 117 x 112 x 36mm, the CL100 packs dependable performance in a system that can be installed virtually anywhere.



Not Just Another Black Box

The CL100 incorporates a modern design aesthetic while maintaining its industrial heritage, striking the optimal balance between form and function.



Built For Your Connected World

Capable of powering triple independent displays, and offering 4K resolution support, the CL100 lets you connect the devices and peripherals you need.



Solid State Design

Logic Supply's innovative Hardshell™ Fanless Technology ensures reliability by wrapping internal components in a durable, dust free, and ventless chassis. The CL100's unique cast aluminum enclosure effectively dissipates heat without the need for a fan.



UL / CB 60950-1 Ready

The CL100 Series expands your market coverage by offering a configuration that is already certified as UL / CB 60950-1 compliant. Deliver your customers trusted products proven to comply with safety standards in countries across the world.



Clean. Elegant. Industrial.

Protected by nickel plated steel and cast aluminum, the CL100 Series brings aesthetic beauty to the industrial space. Textured paint on the chassis protects your system against corrosion and wear.

Views

Detailed model specs on p39



Front



Back



Button Side

ML100

NUC. Evolved.

The ML100 represents the next generation of small form factor industrial computing, packing Intel Skylake processing into our toughest ever NUC enclosure.



Industrial ML100 Series



Smart Design, Smart Platform
Long lifecycle components, high performance cooling, and a forward thinking approach to enclosure architecture make the ML100 the ideal innovation platform.



Compact Versatility

The ML100 Series blends high performance IPC engineering with Intel's NUC form factor, resulting in a computer as versatile as it is compact.



Multi-Screen Capable

Despite its diminutive size, the ML100 Series offers a full range of I/O connectivity, including USB 3.0, Gb LAN, and dual high definition video ports.



Cool And Compact

High performance cooling allows the ML100 Series to dissipate heat more effectively and keep the system running when the going gets hot. Large vertical fins give the ML100 Series a wider operating temperature range and optimal heat transfer.



UL / CB 60950-1 Ready

The ML100 Series expands your market coverage by offering a configuration that is already certified as UL / CB 60950-1 compliant. Deliver your customers trusted products proven to comply with safety standards in countries across the world.



Not Another Black Box

Protected by nickel plated steel and an aluminum extrusion, the ML100 Series brings aesthetic beauty to the industrial space. Defend against wear and tear, scratches and corrosion with the chassis's durable textured paint and clear anodized finish.

Models

Detailed model specs on p39-40



Industrial Bay Trail Fanless NUC
ML100G-10



Industrial Broadwell Fanless NUC
ML100G-30



Industrial Skylake Fanless NUC
ML100G-50



ML200

Advanced Thin Mini-ITX

The ideal combination of size and performance, the ML200 Series wraps Thin Mini-ITX computing in a highly versatile, industrial enclosure.



Industrial ML200 Series



The Strong Silent Type

With an excellent performance-to-size ratio, the ML200 Series offers workstation class computing in a fanless, low profile, industrial grade enclosure.



Low Profile, High Value

With its slim design and versatile mounting options, the ML200 Series can be installed virtually anywhere, allowing for easy access or discreet placement.



Form, Function And Fit

The ML200 Series offers a range of expansion capabilities, including optional M.2 storage and Wi-Fi connectivity, in a 37 mm tall enclosure that can be mounted on walls, monitors, or DIN rails.



No Vents, No Moving Parts, No Worries

Logic Supply's innovative Hardshell™ Fanless Technology ensures reliability by wrapping internal components in a durable, dust free, and fanless case. The ML200 Series keeps cool by dissipating heat into the surrounding air through its unique finned aluminum extrusion.



Interference Protection

The ML200 Series protects electronics by directing electrostatic discharge through the case with the use of EMI shielding conductive foam gaskets. The ML200's nickel plated interior provides additional EMI protection.



Distinctly Industrial

Protected by nickel plated steel and an aluminum extrusion, the ML200 Series brings aesthetic beauty to the industrial space. Defend against wear and tear, scratches and corrosion with the chassis's durable textured paint and clear anodized finish.

Models

Detailed model specs on p40



Industrial Bay Trail Computer
ML210G-10



Industrial Braswell Computer
ML210G-12
4G Capable



Industrial Haswell i5 Computer
ML210G-50



ML300

NUC. Grown Up.

This industrial NUC with room for customization combines Intel's popular form factor with a slim, versatile fanless and ventless chassis featuring a unique expansion bay.



Industrial ML300 Series



Small Form, Big Brains

With processor options ranging up to Intel's Haswell i7, the ML300 Series delivers the maximum performance available in a compact, fanless enclosure.



Cool Under Pressure

The ML300 Series utilizes a reinforced chassis with solid state cooling that silently provides optimal and reliable heat transfer, far outpacing the cooling performance of similar enclosures.



Low Profile Perfected

Less than 1.5 inches tall, and featuring solid state components, the ML300 can be securely installed in even the most space constrained locations.



Fanless & Solid State

Logic Supply's innovative Hardshell™ Fanless Technology ensures reliability by wrapping internal components in a durable, dust free, and fanless case. The ML300 Series keeps cool by dissipating heat into the surrounding air through its unique finned aluminum extrusion.



Specialized EMI Gaskets

The ML300 Series protects electronics by directing electrostatic discharge through the case with the use of EMI shielding conductive foam gaskets. The ML300's nickel plated interior provides additional EMI protection.



Form Meets Function

Protected by nickel plated steel and an aluminum extrusion, the ML300 Series brings aesthetic beauty to the industrial space. Defend against wear and tear, scratches and corrosion with the chassis's durable textured paint and clear anodized finish.

Models

Detailed model specs on p41



Industrial Braswell Low Profile Computer
ML340G-10

4G Capable



Industrial Haswell Low Profile Computer
ML340G-50

ML400

Industrial Mini-ITX

Featuring Mini-ITX computers built with the challenges of industrial applications in mind, the ML400 Series includes systems with the balance of industrial design, connectivity and performance that modern businesses demand.



Industrial ML400 Series



High Performance, Solid State Computing

The ML400 Series provides ultra-reliable, high performance computing in a hardened enclosure designed to stand up to rigors of the industrial work space.



Maximum Connectivity, Minimum Footprint

With a variety of industrial I/O and the ability to run multiple HD displays, the ML400 Series offers powerful functionality in an extremely compact Mini-ITX enclosure.



Set-It-And-Forget-It

Configured with SSD storage, the ML400 Series is a fully solid state solution that offers exceptional reliability and performance.



Fit Your Function

The ML450 has optional configurations from power button and USB, to LCD screens, to added COM ports. With room to expand, the ML450 lets you chose the storage and I/O to best suit your needs.



No Vents, No Fans, No Worries

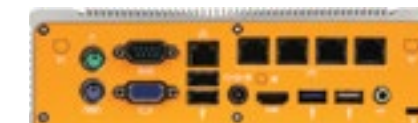
Logic Supply's innovative Hardshell™ Fanless Technology ensures reliability by wrapping internal components in a durable, dust free, and fanless case. The ML400 Series keeps cool by dissipating heat into the surrounding air through its unique finned aluminum extrusion.

Models

Detailed model specs on p41-43

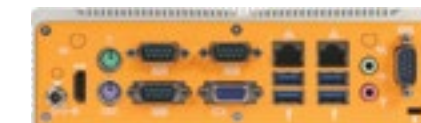


Industrial Bay Trail Mini-ITX
ML400G-10



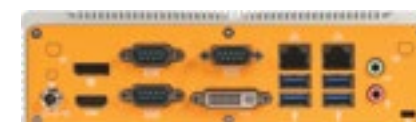
Industrial Bay Trail w/ 5 LAN
ML400G-12

4G Capable



Industrial Braswell Mini-ITX
ML450G-10

4G Capable



Industrial Haswell Mini-ITX
ML450G-50

4G Capable



Industrial Skylake Mini-ITX
ML450G-51

4G Capable



Industrial Kaby Lake Mini-ITX
ML450G-52



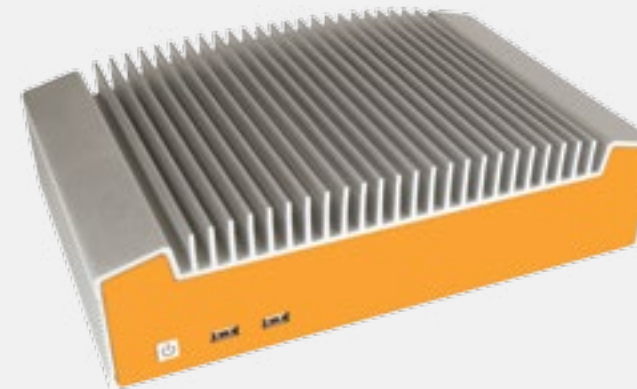
ML600

Fanless Server Capability

The ML600 Series builds on Logic Supply's history of engineering expertise, packing a wide array of features into its distinctive Hardshell™ Fanless chassis.



Industrial ML600 Series



Performance Meets Industrial

Utilizing a fanless, ultra-reliable Hardshell™ chassis, the ML600 Series brings true server class Xeon processing and versatility into the industrial work space.



Store More, Worry Less

Able to accommodate a variety of storage and expansion options, the ML600 Series delivers reliable data-centric performance with industry-leading EMI protection.



Enterprise DNA

The ML600 Series stays true to its industrial heritage, but without compromising on the processing power or management capabilities today's server applications require.



Do More, Fanless

The ML600 Series cools down demanding desktop processing with the use of contoured fins. Maximized surface area allows the chassis to dissipate heat from the internal components into the air.



EMI & ESD Protected

The ML600 Series protects electronics by directing electrostatic discharge through the case with the use of EMI shielding conductive foam gaskets. The ML600's nickel plated interior provides additional EMI protection.



Adaptable And Expandable

The ML600 Series is designed to fit any hardware need, with the ability to customize the enclosure by adding hot swap drives, additional storage, or specific I/O. The hot swap bay can even be converted into a space for custom PCI/PCIe cards.

Models

Detailed model specs on p44-44




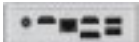






Industrial Avoton Fanless Server
ML600G-10




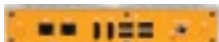





Industrial Haswell With Hot Swap
ML600G-30









Industrial Skylake Computer
ML600G-52

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Specifications	 CL100	 ML100G-10	 ML100G-30	 ML100G-50	 ML210G-10	 ML210G-12	 ML210G-50	
Series	CL100 Series	ML100 Series		ML100 Series	ML200 Series			
Processor	Intel Celeron N3160	Intel Celeron N2930	Intel Core i3/i5	Intel i5-6300U	Intel Celeron J1900	Intel Celeron	Intel i5-4300U	
Processor Speed	1.6 GHz	1.83 GHz	2.1 ~ 2.3Ghz	2.4 GHz	2 GHz	1.6 GHz	1.9 GHz	
Processor Generation	Braswell	Bay Trail	Broadwell	Skylake	Bay Trail	Braswell	Haswell	
Processor Cores	4	4	2	2	4		2	
Graphics/GPU	Intel HD Graphics 400	Intel HD Graphics	Intel HD Graphics 5500	Intel HD Graphics 520	Intel HD Graphics	Intel HD Graphics 400	Intel HD Graphics 4400	
Memory	DDR3L SO-DIMM (non-ECC) Up to 16 GB 1600 MHz	DDR3L SO-DIMM (non-ECC) Up to 8 GB 1333 MHz	DDR3L SO-DIMM (non-ECC) Up to 16 GB 1600 MHz	DDR4 SO-DIMM (non-ECC) Up to 32 GB 2133 MHz	DDR3L SO-DIMM (non-ECC) Up to 8 GB 1333 MHz	DDR3L SO-DIMM (non-ECC) Up to 8 GB 1600 MHz	DDR3L SO-DIMM (non-ECC) Up to 16 GB 1600 MHz	
Rear I/O	2 HDMI ports 1 DisplayPort 1 Gb LAN port 2 USB 3.0 ports	2 USB 2.0 ports 2 Gb LAN ports 1 Line-out connector 2 HDMI ports	2 USB 3.0 ports 1 Gb LAN port (with vPro on i5) 2 Mini-DisplayPorts 1 DIO (optional)	2 HDMI ports 1 DisplayPort 1 Gb LAN port 2 USB 3.0 ports	2 USB 2.0 high current ports 2 USB 3.0 ports 2 COM ports (RS-232) 1 VGA port 1 HDMI port 1 Gb LAN port 2 Audio jacks (mic-in, line-out)	4 USB 3.0 ports 2 Gb LAN ports 1 VGA port 1 HDMI port 2 Audio jacks (mic-in, line-out) 1 COM port (RS-232/422/485)	4 USB 3.0 ports 2 COM ports (RS-232/422/485) 1 DisplayPort 1 HDMI port 2 Gb LAN ports 2 Audio jacks (mic-in, line-out)	
Front I/O	1 USB 3.0 port 1 USB Type C port 1 Audio jack (speaker/mic-in)	1 USB 2.0 port 1 USB 3.0 port 1 COM port (RS-232/422/485) Power button	2 USB 3.0 ports 1 mic/headphone connector 1 COM port (RS-232/422/485 - optional) Power button	1 USB 3.0 port 1 USB Type C 3.1 port 1 Audio jack (speaker/mic-in) 1 Power Button	2 USB 2.0 ports Power button	2 USB 2.0 ports 2 COM ports (RS-232 - optional) Power button	2 USB 2.0 ports 2 COM ports (RS-232) Power button	
Expansion Options	PCIe Mini Card (half height)	PCIe Mini Card (half height)	M.2 NGFF	M.2 NGFF 2230	PCIe Mini Card (full height) PCIe Mini Card (half height)		PCIe Mini Card (half height)	
Storage Options	mSATA	mSATA	M.2 NGFF SSD 22x80	M.2 NGFF SSD 22x60	mSATA			
LAN Controller	Realtek RT8111G	Intel 82583V PCIe GbE	With Core i3: Intel I218V With Core i5: Intel I218LM GbE	Intel I219LM GbE	Realtek RT8111G-CG	Realtek RT8111G	Intel I218LM GbE Realtek RT8111G	
Input Voltage	12 V	9 ~ 24 V	12 ~ 19 V	12 / 19 V	8 ~ 19 V	12 V	9 ~ 19 V	
Power Input	DC jack	DC jack or 4-pin Terminal Block (optional)		DC jack	DC jack			
Operating Temp. Range	0°C ~ 40°C	0°C ~ 40°C		0°C ~ 40°C	0°C ~ 55°C		0°C ~ 50°C	
Dimensions (WxHxD)	116.75 x 36.7 x 112 mm	142 x 62 x 107 mm		142 x 62 x 107 mm	196 x 37 x 213 mm			
Mounting Options	DIN-mount Wall-mount	DIN-mount VESA-mount Wall-mount		DIN-mount VESA-mount Wall-mount	DIN-mount VESA-mount Wall-mount			
Regulatory Information	CE certified (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC (Class A) UL / CB (60950-1) compliant configuration available RoHS	CE standards applied (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC - Assembled using FCC certified components RoHS	CE certified (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC (Class B) UL / CB (60950-1) compliant configuration available RoHS	CE standards applied (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC - Assembled using FCC certified components RoHS	CE standards applied (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC - Assembled using FCC certified components RoHS			

LOGIC
SUPPLY

Specifications	 ML340G-10	 ML340G-50	 ML400G-10	 ML400G-12	 ML450G-10	 ML450G-50	 ML450G-51
Series	ML300 Series		ML400 Series				
Processor	Intel Celeron	Intel Core i3/i5/i7	Intel Celeron J1900	Intel Celeron N2930	Intel Celeron	Intel Celeron Intel Pentium Intel Core i3/i5	
Processor Speed	1.6 GHz	1.7 ~ 1.9 GHz	2 GHz	1.83 GHz	1.6 GHz	2.2 ~ 2.7 GHz	2.3 ~ 3.3 GHz
Processor Generation	Braswell	Haswell	Bay Trail	Bay Trail	Braswell	Haswell	Skylake Kaby Lake
Processor Cores	4	2	4	4	4	2	2 ~ 4
Graphics/GPU	Intel HD Graphics 400	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics 400	Intel HD Graphics	
Memory	DDR3L SO-DIMM (non-ECC) Up to 8 GB 1600 MHz		DDR3L SO-DIMM (non-ECC) Up to 8 GB 1333 MHz	DDR3L SO-DIMM (non-ECC) Up to 8 GB 1333 MHz	DDR3L SO-DIMM (non-ECC) Up to 8 GB 1600 MHz	DDR3 SO-DIMM (non-ECC) Up to 16 GB 1600 MHz	DDR4 SO-DIMM (non-ECC) Up to 32 GB 2133 MHz
Rear I/O	2 USB 3.0 ports 2 Gb LAN ports 1 HDMI port 1 VGA port 2 Audio jacks (mic-in, line-out)	4 USB 3.0 ports 2 Gb LAN ports 2 HDMI ports	1 HDMI port 1 VGA port 2 Gb LAN ports 3 COM ports (RS-232/422/485) 1 COM port (RS-232) 2 USB 3.0 ports 2 USB 2.0 ports 1 PS/2 keyboard port 1 PS/2 Mouse port 2 Audio jacks (mic-in, line-out)	1 HDMI port 1 VGA port 3 USB 2.0 ports 1 USB 3.0 ports 5 Gb LAN ports 1 COM port (RS-232) 1 Audio jack (speaker/mic-in) 2 PS/2 ports	1 HDMI port 1 VGA port 2 Gb LAN ports 2 COM ports (RS-232/422/485) 2 COM ports (RS-232) 4 USB 3.0 ports 1 PS/2 keyboard port 1 PS/2 mouse port 2 Audio jacks (mic-in, line-out)	1 HDMI port 1 DisplayPort 1 DVI-I port 4 USB 3.0 ports 2 Gb LAN ports 3 COM ports (RS-232/422/485) 2 Audio jacks (mic-in, line-out)	3 HDMI ports 2 Gb LAN ports 4 USB 3.0 ports 2 COM ports (RS-232/422/485) 1 COM port (RS-232) 1 VGA port 2 Audio jacks (mic-in, line-out)
Front I/O	2 USB 2.0 ports 2 COM ports (RS-232 - optional) 1 COM port (RS-232/422/485 - optional) Power button	2 USB 2.0 ports 2 COM ports (RS-232 - optional) 1 COM port (RS-232/422/485 - optional) Power button	2 USB 2.0 ports Power button				
Expansion Options	PCIe Mini Card (full height) PCIe Mini Card (half height)		PCIe Mini Card (half height)	PCIe Mini Card (full height) PCIe Mini Card (half height)	PCIe Mini Card (full height)		PCIe Mini Card (full height) PCIe Mini Card (half height)
Storage Options	mSATA		mSATA	mSATA	2.5" HDD mSATA	2.5" HDD/SSD	2.5" HDD/SSD mSATA
LAN Controller	Intel I210 GbE	With Core i3: Intel I218V With Core i5: Intel I218LM GbE Realtek RT8111G	Realtek RT8111G-CG	Intel 82574L Intel i211AT	Realtek RT8111G	Intel I210 GbE Intel I217LM GbE with Intel AMT	Intel I210 GbE Intel I219LM
Input Voltage	12 ~ 24 V	9 ~ 36 V	12 V				
Power Input	DC jack		DC jack				
Operating Temp. Range	0°C ~ 50°C		0°C ~ 50°C			0°C ~ 40°C	
Dimensions (WxHxD)	196 x 36.75 x 141 mm		196 x 57 x 202 mm	196 x 57 x 202 mm	196 x 57 x 270 mm		
Mounting Options	DIN-mount VESA-mount Wall-mount		DIN-mount VESA-mount Wall-mount			DIN-mount VESA-mount Wall-mount	
Regulatory Information	CE standards applied (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC - Assembled using FCC certified components RoHS		CE standards applied (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC - Assembled using FCC certified components RoHS			CE standards applied (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC - Assembled using FCC certified components RoHS	

Specifications	 ML450G-52	 ML500G-30	 ML500G-50	 ML600G-10	 ML600G-30	 ML600G-52
Series	ML400 Series	ML500 Series		ML600 Series		
Processor	Intel Celeron Intel Pentium Intel Core i3/i5	Intel Celeron Intel Pentium Intel Core i3/i5/i7		Intel C2250 Intel C2750	Intel Celeron Intel Pentium Intel Core i3/i5/i7	
Processor Speed	2.3 ~ 3.3 GHz	2.3 ~ 3.3 GHz		2.4 GHz	2.7 GHz	2.3 ~ 3.3 GHz
Processor Generation	Skylake Kaby Lake	Skylake Kaby Lake		Avoton	Haswell	Skylake
Processor Cores	2 ~ 4	2 ~ 4		4 ~ 8	2 ~ 4	
Graphics/GPU	Intel HD Graphics	Intel HD Graphics		ASPEED AST2300	Intel HD Graphics	
Memory	DDR4 SO-DIMM (non-ECC) Up to 32 GB 2133 MHz	DDR4 SO-DIMM (non-ECC) Up to 32 GB 2133 MHz		DDR3 DIMM (ECC) Up to 32 GB 1600 MHz	DDR3 SO-DIMM (non-ECC) Up to 16 GB 1600 MHz	DDR4 SO-DIMM (non-ECC) Up to 32 GB 2133 MHz
Rear I/O	1 HDMI port 1 DisplayPort 2 Gb LAN ports 4 USB 3.0 ports 2 Audio jacks (mic-in, line-out) 4 COM ports (RS-232) Extra 2 Gb LAN ports (optional)	1 HDMI port 1 DisplayPort 2 Gb LAN ports 4 COM ports (RS-232) 4 USB 3.0 ports 2 Audio jacks (mic-in, line-out)	1 HDMI port 1 DisplayPort 1 VGA port 2 Gb LAN ports 4 USB 3.0 ports 4 COM ports (RS-232/422/485) 2 Audio jacks (mic-in, line-out)	1 USB 2.0 ports 2 Gb LAN ports 1 IPMI port 1 COM port (RS-232) 1 VGA port	1 DisplayPort 1 HDMI port 2 Gb LAN ports (1 with iAMT support) 4 USB 3.0 ports 2 COM ports (RS-232) 4 USB 2.0 ports 2 Audio jacks (mic-in, line-out)	3 HDMI ports 2 Gb LAN ports 2 USB 2.0 ports 4 USB 3.0 ports 2 COM ports (RS-232/422/485) 1 COM port (RS-232) 1 VGA port 2 Audio jacks (mic-in, line-out)
Front I/O	2 USB 2.0 ports Power button	2 USB 2.0 ports Power button		2 USB 2.0 ports Power button		
Expansion Options	PCIe Mini Card (full height) PCIe Mini Card (half-height)	PCIe Mini Card (full height) PCIe Mini Card (half height)		-	-	PCIe Mini Card (full height) PCIe Mini Card (half-height)
Storage Options	2.5" HDD/SSD	2.5" HDD/SSD	2.5" HDD/SSD mSATA	2.5" HDD/SSD 2.5" Hot-swap HDD/SSD	2.5" HDD/SSD 2.5" Hot-swap HDD/SSD mSATA	2 2.5" Hot-swap HDD/SDD mSATA
LAN Controller	Intel I219 GbE Intel I210 GbE	Intel I219 GbE Intel I210 GbE	Intel I219V GbE Intel I210 GbE	Intel I210 GbE	Intel I210 GbE Intel I217LM GbE	Intel I210 GbE Intel I219LM
Input Voltage	12 V	12 V		12 V	19 V	12 V
Power Input	DC jack	DC jack		DC jack		
Operating Temp. Range	0°C ~ 45°C	0°C ~ 50°C		0°C ~ 50°C		
Dimensions (WxHxD)	196 x 57 x 270 mm	197 x 79.2 x 202 mm		290 x 79 x 187 mm		
Mounting Options	DIN-mount VESA-mount Wall-mount	DIN-mount Wall-mount		DIN-mount VESA-mount Wall-mount		
Regulatory Information	CE standards applied (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC - Assembled using FCC certified components RoHS	CE standards applied (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC - Assembled using FCC certified components RoHS		CE standards applied (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC - Assembled using FCC certified components RoHS		

RUGGED LINE

Durable, fanless systems that stand up to dust, extreme temps and vibration. Powerful computing in an ultra-reliable, compact footprint.



Fanless



Wide Temperature



Vibration Resistant

Powering Innovation

MegaBots: Giant Fighting Robots

In 2015 the founders of MegaBots Inc. challenged Japan-based Suidobashi Heavy Industry, makers of the 13 foot, 10,000 pound KURATAS mecha, to the world's first giant fighting robot duel. In the intervening two years, MegaBots has crowd-sourced over half a million dollars on Kickstarter to help fund the project, received \$3.85 million in seed funding to develop a robot-fighting league, appeared at events and on television nationwide and drawn an impressive online following. They even have their own comic book.



And they have a sweet logo, too.

As development on their Mark III bot has progressed, MegaBots have been diligently sourcing the equipment necessary to build the fighting mech of their dreams, including industrial PC hardware from Logic Supply. We caught up with MegaBots Co-Founder and Electrical and Control Systems Lead Matt Oehrlein about the state of the project, and found out why he decided that building giant robots was the right application of his expertise (as if "giant robots" isn't enough of a reason).

How did you get involved with the MegaBots project?

Matt Oehrlein: I played a lot of video games as a kid, and so did my co-founder, Gui. When we first met, we knew we could do something cool together! Gui ended up meeting an investor that was crazy enough to support a big bold vision like giant fighting robots. He gave me a call, and we started the company together.



Two Nuvo-5000 systems live in the shoulder of the Mk. III.

How has the project evolved?

The company has evolved from being 3 guys with a dream, to a 14-person surprisingly well-known entertainment franchise. We hope to be kicking off the sports league very soon!

What are you personally working on right now?

Trying to learn how to think like a sales and marketing person. I've been an engineer throughout my entire career, and that's only a small part of the entrepreneurial equation.



Having a great product is not enough. Right now I am focused on pulling together the right partnerships to make the sports league a sustainable endeavor.



The new Mk. III piloted by Matt Oehrlein.

What's been the biggest challenge you've worked on overcoming recently?

Closing large 7-figure financing from a well-known bank.

If that computer goes down because it gets jostled, the whole robot will stop working. It's super important that doesn't happen and that's why we need such a robust solution.

How do you see the Nuvo-5000 from Logic Supply helping you defeat KURATAS?

The Nuvo-5000 is a ruggedized platform that allows us to do a lot of heavy controls computing in a pretty harsh environment. If that computer goes down because it gets jostled, the whole robot will stop working. It's super important that doesn't happen and that's why we need such a robust solution.

What's the feature/component you're most excited to see implemented in the final bot?

Since we will have closed-loop control of most of the actuators of the robot,

I can't wait to apply a low-frequency synchronized sine wave command to all of them to make the robot appear as if it is alive and "breathing".

Can you give us any update on the timeline of the project? Do you have a completion date you're shooting for?

We are currently under NDA with Suidobashi, so we, unfortunately, can't publicly announce anything. The best I can do is tell you to stay tuned to our YouTube channel to follow our progress!

Any advice for aspiring engineers interested in robotics?

Start making things. It doesn't matter how simple or if you don't have the tools. The skills and tools will come. Just start. ■

Photos courtesy of S.N. Jacobson.



DI Series

by Cincoze



I/O Expansion



Reliability Anywhere
Even in extreme environments, the DI Series is protected by its fanless, ventless and cableless construction, with components rated for operation in temperatures ranging from -40°C to 70°C.



Available 4G Connectivity
Compatible with our Extrovert line of 4G modems, the DI Series can provide reliable wireless connectivity or failover protection in mobile, outdoor and remote installations.



Skylake Power
The DI-1000 is powered by an Intel Skylake Core i5 6300U processor, allowing it to handle even the most complex vision, pattern recognition or data management tasks.



Rugged Skylake Compact Computer
DI-1000
4G Capable
Detailed model specs on p61

The Diamond Intelligent (DI) Series of rugged computers from Cincoze offers an incredible size to performance ratio in a rugged PC engineered for the most challenging environments. Powered by the Intel Skylake Core i5-6300U processor, the DI-1000 is well suited for a wide range of complex computing tasks. Along with the Skylake generation of processors

comes support for DDR4 memory which allows for higher speeds, bandwidths, and power efficiency over DDR3. The DI-1000 is also our smallest Core i system to offer support for our new Extrovert line of 4G modems, enabling remote access, failover protection and network autonomy.



Outfit Your Ideal Configuration
Cincoze CMI (Combined Multiple I/O) modules offer flexible connectivity expansion. Choose from an array of additional LAN, PoE, COM, DIO, DisplayPort, DVI or VGA to add to your compatible Cincoze rugged PC.

Expansion Modules



2x Serial COM Ports
Compatibility:
DA-1000



1x DisplayPort
Compatibility:
DA-1000



1x DVI-D Connector
Compatibility:
DA-1000



1x VGA Port
Compatibility:
DA-1000



8x Optical Isolated DIO Port
Compatibility:
DA-1000



1x LPT Parallel Port, 1x PS/2
Compatibility:
DA-1000



CMI LAN/PoE Module
Compatibility:
DI-1000
DS-1000 Series
DS-1100 Series
DE-1000 Series



CMI LAN/PoE M12 Module
Compatibility:
DI-1000
DS-1100 Series

DA Series

by Cincoze



DC Series

by Cincoze



Small Size, Huge Capabilities

With its 150 x 105mm footprint, the DA Series packs impressive connectivity and computing power in its palm-sized chassis. Expand your I/O options with the DA Series' unique CMI module interface for additional DisplayPort, DVI-D, COM, DIO or parallel ports.



Protected From Extreme Temps

Not just small, the Cincoze DA Series features an operating temperature range of -25°C to 70°C, ideal for outdoor installations.



Performance Meets Value

Well suited to a wide range of challenging computing tasks, the DA Series offers a truly rugged computing platform at a fraction of the cost of similar systems.



Flexible Small Form Factor

The Cincoze DC Series removes the fan as a point of failure without sacrificing its ability to effectively operate in temperatures ranging from -25°C to 70°C.



A Compact Powerhouse

Consuming less than 20W, the Cincoze DC Series tackles complex computing tasks that would cripple other similarly-sized PCs thanks to Intel Quad-Core processing.



Connectable And Expandable

Despite its small footprint, the Cincoze DC Series provides a wide range of industrial I/O options, including multiple LAN and COM, as well as externally accessible CFast and SIM card slots.



Rugged Ultra Compact Computer
DA-1000



Detailed model specs on p61

The DA Series from Cincoze is a small, energy efficient (consuming less than 15W) and economical solution for today's most challenging computing applications. The fully fanless and ventless DA Series is protected against dust, dirt, and vibration, allowing for full functionality in even the harshest environments. The DA-1000 manages to house a wide variety of I/O

in its ultra compact enclosure, with two RS-232/422/485 COM ports, dual GbE LAN, and DVI-I. Wide input 9~48 V DC power is supplied via a 3-pin terminal block DC connector for stable, secure power even in vibration-prone or fluctuating power environments. Internal SIM socket and 2 full-size Mini-PCIe slots allow for additional storage and expansion.



Rugged Bay Trail Computer
DC-1100



Detailed model specs on p61

The Diamond Compact (DC) Series of industrial PCs from Cincoze is designed to offer the highest possible performance to size ratio. With included wall mounting hardware and available DIN rail or VESA mounting kits, the Diamond Compact Series can be installed anywhere, but doesn't sacrifice performance for the sake of its diminutive footprint. Intel Quad-

Core processing and an assortment of specialized industrial I/O make the DC Series the perfect computing platform for users contending with space-constrained installations that still requires ample performance. The DC Series offers expansion in the form of additional I/O or wireless options through the expansion bay which accommodates 2x Mini-PCIe.

DE Series

by Cincoze



Fast And Efficient

Built to offer high-end performance while using a fraction of the energy of similar systems, the Cincoze DE Series does more while saving you money.



Small Footprint, Big Impact

The systems in the Cincoze DE Series offer impressive computing power in a sleek, ventless, fanless chassis designed to minimize contaminant ingress and maximize system uptime.



Fit, Form And Function

Cableless construction, a one-piece chassis and a slew of industrial I/O make the Cincoze DE Series the perfect choice for even the most challenging computing environments.



Rugged Ultra Efficient Computer
DE-1000, DE-1001, DE-1002



Detailed model specs on p62

The Cincoze Diamond Efficient (DE) Series from Cincoze is engineered to utilize a fraction of the energy of similar systems without sacrificing its superior performance capabilities. Intel Quad-Core Atom processing gives these highly-customizable systems the flexibility to handle a wide range of computing tasks in any of today's most challenging industrial

environments. With an assortment of specialized I/O, a fanless and ventless enclosure and an operating temperature range of -20°C to 70°C, the Diamond Efficient Series offers a powerful, expandable computing platform designed for the rigors of harsh environments that also keeps operating expenses low while reducing maintenance needs.



DS Series

by Cincoze



Don't Sacrifice Performance

The Cincoze DS Series lets you choose the perfect processor for your needs, from an economical Intel Pentium to a supercharged Core i7 CPU.



Outlast The Competition

Protect your IT investment no matter what the environment. The Cincoze DS Series features fully fanless and ventless enclosures, vibration resistant design and wide operating temperature ranges.



Unbeatable I/O

8 USB ports, dual LAN and up to 6 COM ports, as well as multiple expansion bays, give the Cincoze DS Series unparalleled expansion and customization options.



Rugged Skylake Computer
DS-1100, DS-1101, DS-1102



Detailed model specs on p62

The Cincoze Diamond Superior (DS) Series provides the ultimate in wide-temperature, rugged computing with the expandability, flexibility and durability needed for today's most challenging industrial and embedded computing applications. Featuring Intel Core desktop processing, the Diamond Superior Series is well-equipped to tackle even the

most processing-intensive tasks while supporting multiple display functionality and advanced features like RAID, Power Over Ethernet, Power Over Serial, Digital I/O and ignition sensing. Unique externally-accessible expansion bays allow for easy maintenance or replacement of hard drives, SIM Cards, CFast Cards and even the CMOS battery.

POC Series by Neousys



Rugged Neousys POC Series



Low Power, High Performance
Featuring Intel Atom processing, the Neousys POC Series of rugged PCs is up to any commercial computing challenge.



Go Anywhere Design
Less than 3" tall and measuring less than 6" wide, these small form factor rugged computers were designed to mount anywhere or easily integrate into a larger system like a security camera.



PCs That Grow With You
Multiple USB, COM and LAN, as well as Isolated DIO ensure that the Neousys POC Series will connect to both new and legacy equipment.



The POC Series of rugged PCs from Neousys were built to easily integrate into a wide range of industrial applications, including commercial surveillance and embedded data acquisition. Constructed from wide-temperature components and featuring the latest in passive cooling, the fanless and ventless POC Series manages to put advanced computing in the palm of your hand. Energy efficient

processing keeps operating costs low while the rugged, dust and vibration-resistant chassis ensures long life cycle, reliable operation. With wide operating temperature ranges from -25°C to 70°C and an impressive selection of industrially focused I/O, the POC Series offers affordable rugged computing ideal for a wide range of challenging applications.

Models

Detailed model specs on p62-63



Low Profile Rugged Computer
POC-120



Rugged Bay Trail Computer
POC-200



Rugged Apollo Lake Computer
POC-300



Nuvo Series

by Neosys



Rugged Neosys Nuvo Series



Choose Your Weapon

Available with ultra-efficient Intel Celeron processors up to high-performance i7 CPUs, the Neosys Nuvo Series lets you configure the system that's right for you.



Built For Extreme Temperatures

Able to operate in temperatures as low as -25°C and as high as 70°C, the Neosys Nuvo Series of rugged PCs lets you put a powerful computer virtually anywhere.



Expandable, Customizable

From multiple PoE ports to hot swap storage, the models in the Neosys Nuvo Series were designed to offer the ultimate in connectivity and expandability.



The Neosys Nuvo Series includes a range of advanced rugged PCs designed for the most demanding industrial applications. The Nuvo Series is resistant to shock and vibration and protected from dust and debris by a completely fanless and ventless chassis. With an assortment of versatile, industrially-focused I/O options,

the Nuvo Series was designed to be the heart of your application, connecting to both modern and legacy systems with ease. With models that feature hot swap storage and multiple PCIe Mini Card expansion slots, flexibility and customization are hallmarks of the Nuvo Series.

Models

Detailed model specs on p63-65



Rugged Skylake Computer
Nuvo-5000

4G Capable



Rugged Low Profile Skylake Computer
Nuvo-5000LP

4G Capable



Rugged Low Profile In-Vehicle Computer
Nuvo-2510VTC



Rugged In-Vehicle Computer
Nuvo-3100VTC



Rugged In-Vehicle Skylake Computer
Nuvo-5100VTC



Rugged Ivy Bridge Computer w/ PoE
Nuvo-3600



Nuvo Discrete GPU Series

by Neosys



Rugged Neosys Nuvo Discrete GPU Series



Powerful Graphics Performance
Compatible with the latest NVIDIA GeForce 10-Series graphics cards, the Nuvo Discrete GPU Series gives you access to advanced graphics performance anywhere you need it.



Built To Last
Solid state construction, wide operating temperature ranges and long lifecycle components ensure your hardware will perform reliably for years to come.



Versatile Connectivity
Whether interfacing with modern or legacy equipment, the systems in the Nuvo Discrete GPU Series provide a versatile range of industrial connectivity options.



Expanding upon the already incredibly versatile Nuvo Series of rugged systems, Neosys has created a range of hardware capable of accommodating optional dedicated graphics cards thanks to patented expansion cassette technology. Systems in the Nuvo Discrete GPU Series can be configured with NVIDIA GeForce 10-Series cards to enable

advanced image processing ideal for CUDA computing, complex machine vision or pattern recognition applications. Outfitted with Intel 6th generation Skylake processors, and featuring a wide range of connectivity, these systems offer an impressive combination of performance and flexibility in even the most challenging environments.

Models

Detailed model specs on











Rugged Industrial Automation Computer
Nuvis-5306RT



Rugged High Performance Computer
Nuvo-5095GC



Rugged Expandable Computer
Nuvo-6108GC

<div>  </div>								
Specifications	 DI-1000	 DA-1000	 DC-1100	 DE-1000	 DS-1100-S	 POC-120	 POC-200	
Series	DI Series	DA Series	DC Series	DE Series	DS Series	POC Series		
Processor	Intel i5-6300U	Intel Atom E3826, Celeron J1900	Intel Atom E3845	Intel Atom E3845	Intel Celeron, Pentium, Core i3/i5/i7	Intel Atom E3826	Intel Atom E3845	
Processor Speed	2.4 GHz	1.46 ~ 2 GHz	1.91 GHz	1.91 GHz	2.3 ~ 3.3 GHz	1.46 GHz	1.91 GHz	
Processor Generation	Skylake	Bay Trail	Bay Trail	Bay Trail	Skylake	Bay Trail		
Processor Cores	2	2	4	4	2 ~ 4	2	4	
Graphics/GPU	Intel HD Graphics 520	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics		
Memory	DDR4 SO-DIMM (non-ECC) Up to 16 GB, 2133 MHz	DDR3L SO-DIMM (non-ECC) Up to 8 GB, 1066 MHz	DDR3L SO-DIMM (non-ECC) Up to 8 GB, 1333 MHz	DDR3L SO-DIMM (non-ECC) Up to 8 GB, 1333 MHz, 1066 MHz	DDR4 SO-DIMM (non-ECC) Up to 32 GB, 2133MHz	DDR3L SO-DIMM (non-ECC) Up to 8 GB, 1066 MHz		
Rear I/O	4 Antenna Holes 1 DVI-I Port 1 PS/2 Port 1 DisplayPort Connector 2 GbE LAN Ports 4 USB 3.0 Ports 1 8 bit DIO Block 2 COM ports (RS-232/422/485)	2 Antenna Holes 1 DVI-I Port 2 COM ports (DB9/RS-232/422/485)	1 USB 3.0 port 1 USB 2.0 port 1 DVI-I port 1 DisplayPort 2 Gb LAN ports 2 COM ports (RS-232/422/485) 2 Antenna holes 2 Audio jacks (mic-in, line-out)	1 USB 3.0 port 2 USB 2.0 ports 2 Gb LAN ports 1 DVI-I Port 1 DisplayPort 2 COM ports (RS-232/422/485) 2 Antenna holes 1 PS/2 port 2 Audio jacks (mic-in, line-out)	4 USB 3.0 ports 2 USB 2.0 ports 2 COM ports (RS-232/422/485) 2 Gb LAN ports 1 DisplayPort 1 DVI-I port 1 PS/2 port 2 Audio jacks (mic-in, line-out) 1 Remote switch connector 2 Antenna jacks 1 External fan connector	1 USB 2.0 port 1 USB 3.0 port 1 COM ports (RS-232/422/485) 1 COM ports (RS-232)	1 USB 2.0 port 1 USB 3.0 port 2 COM ports (RS-232/422/485) 2 COM ports (RS-232) 2 Antenna holes	
Front I/O	2 USB 2.0 Ports 4 COM ports (RS-232/422/485) 2 Audio jacks (mic-in, line-out) 1 Power Button 1 Remote Power On/Off Connector (2-pin Terminal Block)	3 USB 2.0 Ports 1 USB 3.0 Port 2 GbE LAN Ports 2 Audio jacks (mic-in, line-out) 1 AT/ATX Power Switch Remote Power On/Off Connector Power button	2 USB 2.0 ports 2 COM ports (RS-232/422/485) Power button Power mode switch	2 USB 2.0 ports 4 COM ports (RS-232/422/485) 1 DIO/GPIO port 4 Gb LAN or PoE ports (Optional) Power button	2 USB 3.0 ports 1 DisplayPort 1 2.5" Hot-swap HDD bay 1 Removable CMOS battery 1 AT/ATX power On/Off switch Power button	1 USB 2.0 port 1 VGA port 2 Gb LAN ports 1 Audio jack (speaker) Power button	2 USB 3.0 ports 1 DVI-I connector 2 Gigabit Ethernet ports on POC-210 (2 25 W PoE ports on POC-200) 1 Audio jack (speaker) 1 DIO/GPIO port	
Expansion Options	2 PCIe Mini Card (full height) Cincoze Modular IO SIM Card Socket	PCIe Mini Card (full height) SIM Card Socket	PCIe Mini Card (full height) CFast SIM Card Socket	Cincoze Expansion Slot PCIe x1 PCIe Mini Card (full height) SIM Card Socket	PCI, PCIe x1, PCIe x16, PCIe x8 2 PCIe Mini Card (full height) SIM Card Socket	-	PCIe Mini Card (full height)	
Storage Options	2.5" HDD/SSD 2.5" Hot-swap HDD/SSD	2.5" HDD/SSD, mSATA	2.5" HDD/SSD	2.5" HDD/SSD	2.5" HDD/SSD, 2.5" Hot-swap HDD/SSD, mSATA, mSATA (shared PCIe Mini Card), SATA 6 Gb/s	mSATA	2.5" HDD/SSD	
LAN Controller	Intel I210AT GbE Intel I219LM GbE	Intel I210-AT Gb	Intel I210-AT Gb	Intel I210 GbE	Intel I210AT GbE Intel I219LM GbE	Intel I210 GbE		
Input Voltage	9 ~ 48 V	9 ~ 48 V	9 ~ 48 V	9 ~ 48 V	9 ~ 48 V	8 ~ 35 V		
Power Input	3-pin Terminal Block DC connector	3-pin Terminal Block DC connector	3-pin Terminal Block DC connector	3-pin Terminal Block DC connector	3-pin Terminal Block DC connector	2-pin Terminal Block DC connector		
Operating Temp. Range	-40°C ~ 70°C	-25°C~70°C	-25°C~70°C	-20°C ~ 70°C	-40°C ~ 70°C	-25°C ~ 70°C		
Dimensions (WxHxD)	203 x 66.8 x 142 mm	150 x 56.02 x 105 mm	185 x 54 x 131 mm	DE-1000: 203 x 65 x 200 mm DE-1001: 203 x 96.5 x 200 mm DE-1002: 203 x 114.5 x 200 mm	DS-1100: 227 x 88 x 261 mm DS-1101: 227 x 108 x 261 mm DS-1102: 227 x 128 x 261 mm	105 x 34 x 149 mm	105 x 57 x 149 mm	
Mounting Options	Wall-mount, DIN-mount, VESA-mount	DIN-mount, Wall-mount	Wall-mount, DIN-mount, VESA-mount	Wall-mount, DIN-mount, VESA-mount	Wall-mount	DIN-mount, Wall-mount	Wall-mount	
Regulatory Information	CE certified (EN 50155 / EN 50121-3-2 / EN 55022 / EN 55024 / EN 55032) FCC Class A E-Mark (E13) RoHS	CE certified (EN 55022 / EN 55024) CE standards applied (EN 55032) FCC Class A RoHS	CE certified (EN 55022 / EN 55024) CE standards applied (EN 55032) FCC Class A E-Mark (E13) RoHS	CE certified (EN 50155 / EN 50121-3-2 / EN 55022 / EN 55024) CE standards applied (EN 55032) FCC Class A RoHS	CE certified (EN 50155 / EN 50121-3-2 / EN 55022 / EN 55024) CE standards applied (EN 55032) E-Mark (E13) FCC Class A RoHS	CE standards applied (EN 55022 / EN 55024 / EN 60950) FCC Class A RoHS		

LOGIC
SUPPLY

Specifications



Nuvo-3600



Nuvis-5306RT



Nuvo-5095GC



Nuvo-6108GC

Series	Nuvo Series			Nuvo Series
Processor	Intel Core i3/i5/i7	Intel Celeron Intel Pentium Intel Core i3/i5/i7		Intel Celeron Intel Pentium Intel Core i3/i5/i7 Intel Xeon
Processor Speed	2.4 ~ 2.7 GHz	2.3 ~ 3.4 GHz		2.3 ~ 3.8 GHz
Processor Generation	Ivy Bridge	Skylake		Skylake
Processor Cores		2 ~ 4		2 ~ 4
Graphics/GPU	Intel HD Graphics	Intel HD Graphics GTX-1050 GPU (optional)		Intel HD Graphics GTX-1080 Titan GPU (optional)
Memory	DDR3 SO-DIMM (non-ECC) Up to 16GB 1600 MHz	DDR4 SO-DIMM (non-ECC) Up to 32 GB 2133 MHz		DDR4 SO-DIMM (non-ECC or ECC) Up to 32 GB 2133 MHz
Rear I/O	2 USB 3.0 ports 2 USB 2.0 ports 2 DVI-D port 1 VGA port 1 Gb LAN port 1 PS/2 port 2 Audio jacks (mic-in, line-out)	1 Real-time Vision I/O port 2 COM ports (RS-232/422/485) 1 COM port (RS-232) 4 USB 2.0 ports 2 Audio jacks (mic-in, line-out) 1 DVI-D port (optional) 1 DisplayPort (optional) 1 HDMI port (optional)	2 COM ports (RS-232/422/485) 1 COM port (RS-232) 4 USB 2.0 ports 2 Audio jacks (mic-in, line-out) 1 DVI-D port (optional) 1 DisplayPort (optional) 1 HDMI port (optional)	-
Front I/O	8 or 16 802.3at PoE+ ports (25.5w) 2 COM ports (RS-232/422/485)	2 DisplayPorts 1 DVI-D port 1 VGA port 4 USB 3.0 ports 6 GbE LAN ports (4 25W PoE ports)	2 DisplayPorts 1 DVI-D port 1 VGA port 4 USB 3.0 ports 6 GbE LAN ports	2 DVI-D ports 4 USB 3.0 ports 2 GbE LAN ports 2 COM ports (RS-232/422/485) 1 Audio jack (line-out)
Expansion Options	PCIe Mini Card (full height w/ USIM) PCIe Mini Card (full height) CFast	PCIe Mini Card (full height) PCIe x16 SIM Card Socket		PCIe x 16 PCIe x 8
Storage Options	2.5" Hot-swap HDD/SSD	2.5" HDD/SSD mSATA		2.5" HDD/SSD
LAN Controller	Intel I210 GbE	Intel I219 GbE Intel I210 GbE		Intel I219LM GbE Intel I210IT GbE
Input Voltage		8 ~ 35 V		24 V
Power Input		3-pin Terminal Block DC connector		2 3-pin Terminal Block DC connector
Operating Temp. Range	-25°C ~ 60°C	Configuration dependent		-25°C ~ 60°C
Dimensions (WxHxD)	240 x 70 x 255 mm	240 x 225 x 111 mm	241 x 225 x 111 mm	164 x 360 x 174 mm
Mounting Options		Wall-mount		Wall-mount
Regulatory Information		CE certified (EN 55022 / EN 55024) CE standards applied (EN 55032) FCC Class A RoHS		CE certified (EN 50155 / EN 50121-3-2 / EN 55022 / EN 55024) CE standards applied (EN 55032) FCC Class A RoHS

RACKMOUNT

Easy to integrate 1U and 2U rackmount computers.
Energy efficient and ideal for networking, servers or data acquisition.



Networking

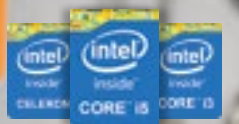
MK100 & MK150 Series

Server Grade Connectivity



MK020 Series

Reliable Fanless Rackmounts



Easy To Integrate

Featuring 1 and 1.5U systems, the MK Series was built with longevity in mind, with right angle case folds to minimize EMI and whisper quiet cooling fans for inconspicuous operation.



Server Grade Connectivity

With up to 6 LAN ports, the MK Series makes an ideal network server or gateway device with ample room for expansion and customization.



Versatile Performance

The MK Series is powered by a range of efficient, highly versatile Intel processors, offering impressive performance even under heavy computing loads.



Function Meets Form

The MK020 Series enables our Hardshell™ Fanless systems to be integrated into your existing rackmount infrastructure, giving you unparalleled installation flexibility.



A More Reliable Rackmount

Passively cooled without the use of failure-prone fans, our fanless rackmount systems help ensure long lasting performance and reduce maintenance costs.



Room To Grow

The unique design of the MK020 Series allows you to install two small form factor fanless systems side by side, enabling high performance computing.

Models

Detailed model specs on p57-58



Bay Trail 1U Rackmount
MK100B-10



Haswell 1U Rackmount
MK100B-50



Skylake 1U Rackmount
MK100B-51



Bay Trail 1.5U Rackmount
MK150B-10



Models

Detailed model specs on



Fanless Braswell 2U Rackmount
MK020-10



Fanless Haswell 2U Rackmount
MK020-50

Specifications



MK100B-10



MK100B-50



MK100B-51



MK150B-10



MK020-10

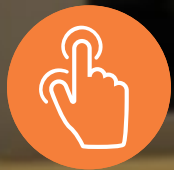


MK020-50

Series	MK100 Series			MK150 Series	MK020 Series	
Processor	Intel Celeron J1900	Intel Celeron Intel Pentium Intel Core i3/i5/i7		Intel Celeron J1900	Intel Celeron	Intel Celeron Intel Pentium Intel Core i3/i5
Processor Speed	2 GHz	2.2 ~ 2.7 GHz	2.3 ~ 3.4 GHz	2 GHz	1.6 GHz	2.2 ~ 2.7 GHz
Processor Generation	Bay Trail	Haswell	Skylake	Bay Trail	Braswell	Haswell
Processor Cores	4	2 ~ 4		4	4	2
Graphics/GPU	Intel HD Graphics			Intel HD Graphics	Intel HD Graphics	Intel HD Graphics
Memory	DDR3L SO-DIMM (non-ECC) Up to 8 GB 1333 MHz	DDR3 SO-DIMM (non-ECC) Up to 16 GB 1600 MHz	DDR4 SO-DIMM (non-ECC) Up to 32 GB 2133 MHz	DDR3L SO-DIMM (non-ECC) Up to 8 GB 1333 MHz	DDR3L SO-DIMM (non-ECC) Up to 16 GB 1600 MHz	DDR3 SO-DIMM (non-ECC) Up to 16 GB 1600 MHz
Rear I/O	2 USB 2.0 ports 2 USB 3.0 ports 1 VGA port 2 Gb LAN ports 1 DVI-I port 2 COM ports (RS-232) 1 PS/2 keyboard port 1 PS/2 mouse port 3 Audio jacks (mic-in, line-out, line-in)	1 HDMI port 1 DisplayPort 1 DVI-I port 4 USB 3.0 ports 2 Gb LAN ports with iAMT 3 COM ports (RS-232/422/485) 2 Audio jacks (mic-in, line-out)	1 HDMI port 1 DisplayPort 1 VGA port 2 Gb LAN ports 4 USB 3.0 ports 2 COM ports (RS-232/422/485) 2 Audio jacks (mic-in, line-out)	2 USB 2.0 ports 2 USB 3.0 ports 1 VGA port 2 Gb LAN ports 1 DVI-I port 2 COM ports (RS-232) 1 PS/2 keyboard port 1 PS/2 mouse port 3 Audio jacks (mic-in, line-out, line-in)	4 USB 3.0 ports 2 Gb LAN ports 1 VGA port 1 HDMI port 2 Audio jacks (mic-in, line-out) 1 COM port (RS-232/422/485)	1 HDMI port 1 DisplayPort 1 DVI-I port 4 USB 3.0 ports 2 Gb LAN ports 3 COM ports (RS-232/422/485) 2 Audio jacks (mic-in, line-out)
Front I/O	2 USB 2.0 ports Power button			2 USB 2.0 ports Power button	2 USB 2.0 ports 2 COM ports (RS-232 - optional) Power button	2 USB 2.0 ports Power button
Expansion Options	PCIe mini card PCIe x1	PCIe x16 PCIe Mini Card (half height)	PCIe x 16 PCIe Mini Card (full height)	PCIe x1 PCIe Mini Card (full height)	PCIe Mini Card (full height) PCIe Mini Card (half height)	-
Storage Options	2.5" HDD/SSD	2.5" Hot-swap HDD/SSD mSATA	2.5" HDD/SSD mSATA	2.5" HDD/SSD	mSATA	
LAN Controller	Realtek RT8111G-CG	Intel I210 GbE Intel I217LM GbE	Intel I219LM GbE Intel I210 GbE	Realtek RT8111G-CG	Realtek RT8111G	Intel I210 GbE Intel I217LM GbE with Intel AMT
Operating Temp. Range	0°C ~ 50°C			0°C ~ 50°C	0°C ~ 55°C	0°C ~ 45°C
Dimensions (WxHxD)	482.6 x 44.4 x 257.05 mm			482.6 x 65 x 257.05 mm	482.6 x 88.9 x 288.5 mm	
Mounting Options	Wall-mount Rackmount			Rackmount	Rackmount	
Regulatory Information	CE standards applied (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC - Assembled using FCC certified components RoHS			CE standards applied (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC - Assembled using FCC certified components RoHS	CE standards applied (EN 55022 / EN 55024 / EN 55032 / EN 60950-1) FCC - Assembled using FCC certified components RoHS	

PANEL PC

Ultra-reliable industrial touchscreens for kiosk, POS and HMI applications. Unique modular design and an IP65 rated front bezel create a flexible, durable all-in-one solution.



Multi-touch



Expansive I/O

The Logic Supply logo is displayed on the screen of the foreground panel PC. It consists of the word "LOGIC" in large, bold, white letters, with "SUPPLY" in smaller white letters below it, set against an orange background.



CV100 Series

Power At Your Fingertips



Panel PC CV100 Series



Performance Comes In All Sizes
The Cincoze Crystal Series comes in sizes ranging from 8.4 inches to 21.5 inches, ensuring we have the size that fits your needs perfectly.



Power At Your Fingertips
Don't struggle with unresponsive, slow panel PCs. The Cincoze Crystal Series combines Intel processing with a high quality touchscreen display.



Unmatched Connectivity
Created with the needs of modern HMI, kiosk and industrial control applications in mind, the Crystal Series features I/O not commonly seen in a panel, like DIO, dual LAN and COM.



Smooth. Clean. Tough.
With its flush bezel for easy cleaning, top of the line brightness and resolution capabilities, IP65 rated toughness, and the ability to customize a bezel to your color and logo preferences, the Crystal Series is one of the toughest and best looking Panel PCs on the market.



Unique Modularity
Detachable PC and monitor modules allow for easy upgrades and maintenance without the need to replace the entire system. Choose from a range of display sizes and PC modules to create your ideal all-in-one solution.



No Fan? No Problem.
With its fanless design, the Crystal Series prevents the downtime and damage caused by dust and airborne debris, creating a far more durable and longer lasting panel PC solution.

Build Your Perfect Panel PC

Detailed model specs on p77-78



1. Select Your Display
2. Select Your PC Module



Industrial Displays
From 8.4" to 21.5"



Industrial PC Modules
Bay Trail: P1001, P1001E
Intel Core i5: P2002, P2002E
Pictured: P1001 & P2002



















Specifications

CV-108

CV-110

CV-112H


CV-115

CV-117

CV-119


CV-W121

Series	CV100 Displays				CV100 Displays		
Touchscreen Type	5-wire Resistive	5-wire Resistive or Capacitive			5-wire Resistive or Capacitive		
Viewing Angle (L/R:T/B)	150 / 130	160 / 130	160 / 160	160 / 160	170 / 160		178 / 178
Display Resolution	800 x 600 (SVGA)		1024 x 768	1024 x 768 (XGA)	1280 x 1024 (SXGA)		1920 x 1080
Display Size	8.4"	10.4"	12.1"	15"	17"	19"	21.5"
Display Brightness	400 cd/m2		500 cd/m2	350 cd/m2			300 cd/m2
Contrast Ratio	600:1	700:1			800:1	1000:1	5000:1
Aspect Ratio	4:3				4:3		16:9
Dimensions (WxHxD)	262 x 186 x 65 mm	295 x 227.3 x 65 mm	345 x 265.3 x 66.5 mm	408 x 312.4 x 68 mm	450 x 350 x 72 mm	510 x 389.3 x 72 mm	550 x 331.8 x 88 mm
Mounting Options	VESA-mount, Panel-mount				VESA-mount, Panel-mount		
Regulatory Information	CE certified (EN 55022 / EN 55024), CE standards applied (EN 55032), FCC Class A, RoHS				CE certified (EN 55022 / EN 55024), CE standards applied (EN 55032), FCC Class A, RoHS		



P1001

Series	Modules
Processor	Intel Atom E3845
Processor Generation	Bay Trail
Graphics/GPU	Intel HD Graphics
Memory	DDR3L DIMM (non-ECC), Up to 8 GB, 1333 MHz
I/O	1 VGA 1 DisplayPort 1 USB 3.0 port 3 USB 2.0 ports 2 COM ports (RS-232/422/485) 2 Audio jacks (mic-in, line-out) 2 Antenna jacks 1 8-bit DIO 2 Gb LAN
Expansion Options	PCIe Mini Card (full height)
Storage Options	2.5" HDD/SSD, CFast
LAN Controller	Intel I210-AT Gb
Input Voltage	9 ~ 48 V
Power Input	3-pin Terminal Block DC connector
Operating Temp. Range	-25°C ~ 70°C (without panel)
Dimensions (WxHxD)	P1001: 204.5 x 37.5 x 149 mm P1001E: 204.5 x 60 x 150 mm
Mounting Options	VESA-mount, Panel-mount (with panel)
Regulatory Information	CE certified (EN 55022 / EN 55024), CE standards applied (EN 55032) FCC Class A, RoHS



P2002

Series	Modules
Processor	Intel i5-6300U
Processor Generation	Skylake
Graphics/GPU	Intel HD Graphics 520
Memory	DDR4 SO-DIMM (non-ECC), Up to 32 GB, 2133 MHz
I/O	Power Button Reset Button AT/ATX Mode switch 1 DVI-D connector 1 VGA connector 4 USB 3.0 ports 1 USB 2.0 port 4 Antenna holes 2 Gb LAN ports (optional PoE) 6 COM ports (RS-232/422/485) 2 Audio jacks (mic-in, line-out) 1 16-pin Terminal Block Isolated DIO 1 4-pin Terminal Block External FAN connector 1 2-pin Terminal Block Remote Power connector
Expansion Options	2 PCIe Mini Card (full height)
Storage Options	2.5" HDD/SSD, CFast/SIM, mSATA
LAN Controller	Intel I210AT GbE, Intel I219LM GbE
Input Voltage	9 ~ 48 V
Power Input	3-pin Terminal Block DC connector
Operating Temp. Range	-25°C to 70°C (without panel)
Dimensions (WxHxD)	P2002: 254.5 x 54 x 220 mm P2002E: 254.5 x 72 x 220 mm
Mounting Options	VESA-mount, Panel-mount (with panel)
Regulatory Information	CE certified (EN 55022 / EN 55024), CE standards applied (EN 55032) FCC Class A, RoHS

Motherboard Kits

For Embedded Applications

Motherboard Kits

Some customers don't need an enclosed PC, and many spaces cannot accommodate one. For these customers, we offer Motherboard Kits—complete “caseless” systems that include board, processor, storage and memory. Logic Supply kits can be integrated onto a mounting plate and arrive pre-imaged with your software.

1. **Select** your motherboard from over 30 options using our online section filters.



Extended Life Motherboards
+5 Year Expected Lifecycle

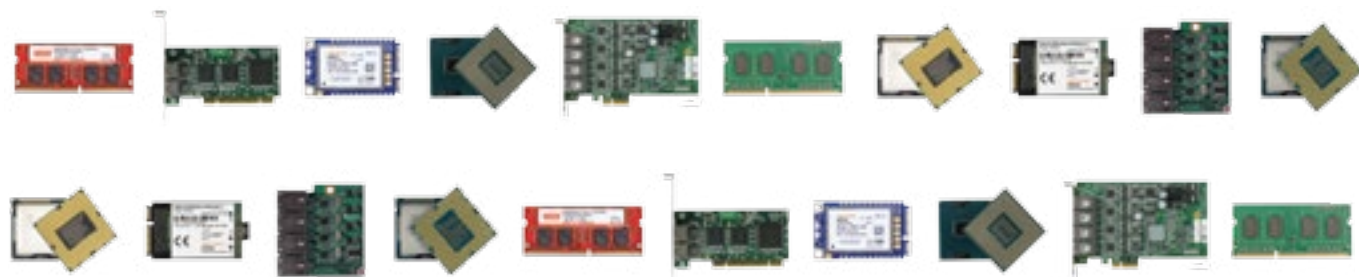


Fanless Motherboards
Fanless NUC and Mini-ITX



Intel Core Motherboards
x86 Intel Core i3/i5/i7

2. **Add** required components, including processors, storage, memory, and other add-ons.



3. **Mount** your system on the CT100 plate, for easy installation.

4. **Bundle** additional Logic+ services, including software imaging and BIOS changes.

5. **Work** with your account manager to ensure our supply chain meets your demand over time.



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Designed To Last, Built To Order, Delivered In Days.