

LEADING ONE STOP PROVIDER FOR EMBEDDED SYSTEMS

ASEAN

GOPALAM EMBEDDED SYSTEMS

www.embeddedsingapore.com

HELPING YOU ENGINEER EMBEDDED SUCCESS

Trusted Tools And Solutions For Building Fast, Reliable, Safe Embedded Systems

Gopalam Embedded Systems (GES) is an associate company of the ESA Group. Since 1996, GES and the ESA Group have brought together global technology partners, best-in-class embedded tools providers and specialist solution providers to offer a comprehensive, integrated portfolio spanning across **EMBEDDED DEVELOPMENT TOOLS, EMBEDDED PROTOCOL SOLUTIONS, EMBEDDED HARDWARE SOLUTIONS, AND BOARD TEST, POWER ANALYSIS AND INSPECTION** - an ecosystem of development tools and embedded solutions that support the entire embedded systems development lifecycle, from design and development through debugging, verification and validation to deployment.

GES PRODUCT PROTFOLIO

EMBEDDED DEVELOPMENT TOOLS

GES offers qualified compilers, multicore debug and trace tools and safety-certified RTOS that help teams write, debug and certify software on Arm, RISC-V, AURIX and Power Architecture. Certified code coverage and model-based V&V tools handle the most demanding part of certification: producing the evidence that the software is safe.

- **Compilers and IDEs**: Cross-compilers for key automotive and industrial architectures, including ISO 26262 ASIL D-qualified toolchains
- **Debug and Trace:** Multicore and trace-level visibility into running code, on architectures from Cortex-M to AURIX and RISC-V
- **RTOS and Middleware**: Safety-certified RTOS, hypervisors and middleware, up to ASIL D, SIL 3 and IEC 62304 Class C
- **Software and MBD V&V**: Coverage, test and model-quality evidence, with full requirements traceability

EMBEDDED PROTOCOL SOLUTIONS

From CAN XL and 10GBASE-T1 in the vehicle to Gen6 PCIe, CXL, USB4, TSN and Bluetooth 6.0 in the data center and the lab, GES offers analyzers, fault injectors and test platforms that validate every critical interface link before it reaches the field.

- **High-Speed Digital**: PCIe Gen6, CXL, NVMe, eMMC, UFS and MIPI validation, including fault injection and power margining
- **Compliance and RF Test**: USB PD, USB4 and Qi2 compliance testing, and Bluetooth 6.0 RF-PHY and protocol testing
- **Deterministic Ethernet**: TSN and HSR/PRP IP and switches, plus EtherCAT software stacks and diagnostic tools
- **Vehicle Connectivity**: A full in-vehicle network toolchain, from CAN to CAN XL, LIN and Automotive Ethernet (10BASE-T1S to 10GBASE-T1), for interfacing, logging, gateways, capture and impairment testing

EMBEDDED HARDWARE SOLUTIONS

GES hardware solutions help take designs from prototype to production. The range spans system-on-modules, edge AI systems and MIL-STD-810 rugged computers. It also includes data acquisition, industrial I/O, connectivity ICs, and in-system and gang programmers for the production line.

- **Programmers and Flashers**: Production programming at every scale, from field service to automated high-volume lines, with security and serialization options
- **Embedded Computing**: Ready-made compute on NXP, TI, Intel, Renesas and NVIDIA Jetson, so teams don't have to design the processor board
- **Rugged Computing and DAQ**: Rugged boards and MIL-STD-810-tested computers, with integrated data acquisition and precision sensor and encoder I/O
- **Serial and Industrial I/O**: Serial connectivity from RS-232 to 50 Mbit/s synchronous, plus Modbus remote I/O
- **Connectivity ICs**: Building blocks for USB bridging, hardwired TCP/IP and Wi-Fi in the customer's own design

BOARD TEST, POWER ANALYSIS AND INSPECTION

Boundary-scan test finds faults that probes can't reach. Power analysis runs from a 3V3 rail to 3-phase AC. Microscopes and Focused-IR rework stations close the loop from detecting a defect to repairing it.

- **Boundary-Scan Test**: Fault detection on populated boards, with guided diagnosis and rework
- **Power Analysis**: Measurement from battery-powered devices to servers, data centers, EV chargers and 3-phase AC, for low-power tuning and efficiency validation
- **Test, Inspection and Rework**: PC-based instruments, Focused-IR BGA rework and ergonomic microscopes

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EMBEDDED DEVELOPMENT TOOLS

CROSS COMPILER TOOLCHAINS & IDES

HIGHTEC

HighTec GCC / LLVM-Based C/C++ and Rust Compilers

ASIL D Qualification Kits • GTM / MCS and HSM Compilers
Infineon AURIX TC2x/TC3x/TC4x • Arm Cortex M/R/A Infineon Traveo • RISC-V
ST Stellar (Cortex-R52 / Cortex-M),SPC56x / 57x / 58x
NXP: S32 Series, MPC56xx / 57xx / 58xx • Renesas RH850 GTM/MCS v3.x / v4.x

SEGGER

High-Performance Embedded C/C++ Development Toolchains

SEGGER Embedded Studio (IDE) • Compiler (Clang-Based, ARM & RISC-V • GCC Toolchain (ARM & , RISC-V) • Linker
ARM Cortex-M / R / A, Legacy ARM (Arm7 / 9 / 11) • RISC-V RV32 / 64
ST • NXP • Renesas • TI • Microchip • Infineon

COSMIC Software

Target-Optimized Embedded C Compiler Toolchains

C Cross-Compilers • Assemblers and Linkers • IDEA (IDE) • MISRA Checker
Arm Cortex-M0 to M7, Power Architecture e200 (VLE), 8 / 16 / 32-bit MCUs
ST: STM8, STM32, SPC5 (Power Architecture, VLE)
NXP: S32K, Kinetis, LPC, MPC5xxx (Qorivva), S12Z / MagniV S12ZVM, S12X, XGATE, HCS12, HCS08
Renesas: RX Family • Infineon: C166 / XC166

DEBUG & TRACE SOLUTIONS

PE micro

Secure & Reliable Debug and Production Tools

Multilink In-Circuit Debug Probes • Cyclone In-System and Automated Flash Programmers
Debug Interfaces (JTAG, SWD, cJTAG)
Trace Interfaces (SWO, ETM, RISC-V Trace)
ARM Cortex-M • ColdFire • Infineon AURIX/TriCore
NXP Kinetis/LPC/MCX/i.MX RT/S32K, MPC5xx/8xx
STM32 • NXP & ST 8-/16-/32-bit MCUs

SEGGER

High Performance Debug, Trace and Production Tools

J-Link • J-Trace • J-Flash • Ozone • RTT
Debug Interfaces: JTAG • SWD • cJTAG • FINE • SPD • ICSP
Trace Interfaces: SWO • ETM • PTM • ETB / MTB • RISC-V N-Trace BTM
ARM Cortex-M/R/A • ARM7/9/11 • RISC-V • Renesas RX

SOFTWARE V&V TOOLS

Verifysoft TECHNOLOGY

Tüv-Certified Code Coverage Analysis Tool

Testwell CTC++, Host and Target Code Coverage for C/C++
Statement, Decision, Condition, MC/DC, Multi-condition Coverage
ISO 26262 • IEC 61508 • EN 50716 • IEC 62304

SYNOPSYS TPT

Model And Code Test Automation Framework For Embedded Software

TPT for Simulink, TargetLink, Embedded Coder, ASCET, SCADE, C/C++, AUTOSAR
Back-to-Back Testing (Model vs. Code) • MiL /SiL /PiL /HiL /ViL
Automated Test Case Generation (TASMO)
Coverage Analysis: Code and Model Coverage up to MC/DC, CTC++ Integration
Requirements Traceability
ISO 26262 (Tool Qualification up to ASIL D) • IEC 61508 • ASPICE SWE.4–SWE.6

RTOS & MIDDLEWARE

HIGHTEC

Automotive Grade Safety Rtos And Middleware

PXROS-HR Multicore RTOS • Infineon MCAL • SafeTlib • HighTec Qkit
ISO 26262 ASIL D • IEC 61508 SIL 3
Infineon AURIX TC2x/TC3x/TC4x

QNX

Safety-Certified RTOS, Hypervisor And Foundational Middleware

QNX® OS for Safety 8.0 • QNX Hypervisor for Safety
ISO 26262 ASIL D • IEC 61508 SIL 3 • IEC 62304 Class C • ISO/SAE 21434
Armv8, Armv9 and x86-64 for Automotive, Industrial, Robotics and Medical

SEGGER

Safe RTOS And Middleware

SEGGER embOS-Safe • emNet • emUSB • emFile
emWin • emModbus • emSecure • emLoad • emBoot-Secure
Certified RTOS for Arm, RISC-V & RX Applications Requiring IEC 61508 SIL 3, ISO 26262 ASIL D, and IEC 62304 Class C Compliance

MBD V&V TOOLS

MES

TÜV SÜD-Certified Static Model Analysis For Simulink Targetlink

MES Model Examiner® (MXAM) • MES Model & Refactor (MoRe) • MES Quality Commander® (MQC)
Guideline checks (MISRA, MAB) • Model metrics • Model refactoring • Quality monitoring
MATLAB/Simulink • Stateflow • TargetLink • Embedded Coder
ISO 26262 • IEC 61508 • ISO 25119

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Model And Code Test Automation Framework For Embedded Software

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EMBEDDED PROTOCOL SOLUTIONS

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Acute — PC-Based Logic, Protocol and Storage Bus Analyzers

Travel Logic Analyzers • Travel Bus Analyzers • Bus Finder Series BF7264 Pro/BF7264B+ • Protocol Exerciser PX2816B
Key Protocols: eMMC5.1, UFS2.1, MIPI D-PHY/M-PHY, SD/SDIO/UHS-II, NAND/SPI FLASH, I2C, SPI, I3C, UART, CAN/CAN FD, LIN
Bus Finder Series: Real time data display, Trigger for commands/data, post-capture waveform • Multi–Protocol Exerciser: I2C, I3C, SPI, UART.
Error Injection and Compliance test Mode

AUKUA — 3-in-1 Ethernet Test: Capture, Impairment and Traffic Generation

MGA8410: 4-Port, 10 MbE–10 GbE (RJ45 / SFP+) • XGA4250: 4-Port SFP28, 1 GbE–25 GbE
Capture: Inline PCS / L2+, Protocol Analysis
Impairment: Delay, Jitter, Loss, Bandwidth
Traffic Generation: BER, RFC 2544, Latency
BASE-T: 10M / 100M / 1G / 2.5G / 5G / 10G • BASE-T1: 100M / 1G / 2.5G / 5G / 10G • 10BASE-T1S • BASE-R / X: 1G–25G

SERIAL CABLES — Gen6 PCIe / CXL Interconnect and Validation Hardware

Host Cards • Retimers / Redrivers • Adapters • MCIO / EDSFF Cables • Test Fixtures • Hydra Gen6 E3 JBOF
PCIe Gen4 / Gen5 / Gen6 • CXL • NVMe • SAS4 24 Gb/s • Gen7 Cable Assemblies

SOCE — Deterministic Ethernet IP Cores and Rugged TSN Networking

IP Cores: MTSN • TGES • ETSN • HPS • MRS • AeroTSN-EP
Hardware: RELY-TSN Switches • RELY-TSN Endpoints • HSR/PRP RedBoxes
IEEE 802.1: AS • Qbv • Qav • CB (FRER) • Qci • Qbu / 802.3br • Qcc
IEEE 1588 PTP • HSR / PRP

RFcreations — Bluetooth and Multi-PHY RF Test and Protocol Analysis

mini-moreph • mini-morphC • mini-morphCS • morph30 • morphE • blueSPY
Bluetooth 6.0 RF-PHY Test Cases • Channel Sounding • LE Audio • BR/EDR / LE • Wi-Fi • IEEE 802.15.4

GRL — USB Power Delivery & USB-C® Solutions and Qi Wireless Charging Solutions

USB Type-C® Power Delivery Tester and Analyzer – EPR (GRL-USB-PD-C2-EPR)
USB-C® EU (IEC 62680-1-2) Conformance Tester (V-DPWR-EPR)
USB Power Delivery & Data Loopback Volume Tester (GRL-V-UP)
Qi Development, Debug and Validation Platform (Qi DevStudio)

Quarch Technology — PCIe / CXL Fault Injection and Power Analysis

Quarch Breakers Module • Programmable Power Modules (HD PPM, MegaPPM) • Power Analysis Modules • Quarch Power Studio
Gen6/5/4 Breaker Modules: AIC x1–x16 • EDSFF E1 /E3 • U.2 • MCIO
Fault Injection: Hot-Swap, Pin-Bounce, Signal Glitching
Power Margining: 0–120% Rail Voltage, Ramp, Glitch, Brownout, Power Loss
Power Analysis: 250 KS/s Measurement, Long-Term Trace (Hours to Days), Sideband Capture
PCIe Gen6 (64 GT/s) • CXL • NVMe • SAS / SATA • OCP 3.0

ETHERCAT SOFTWARE & DIAGNOSTIC TOOLS

acontis technologies — Real-Time EtherCAT Software: Control, Simulation and Diagnostics

EC-Master • EC-Win • EC-Engineer • EC-Simulator • EC-Lyser • EC-Inspector • EC-STA
EtherCAT Master Stack • Analysis • Configuration • Simulation • Fault Diagnosis

IN VEHICLE CONNECTIVITY SOLUTIONS

PEAK-System — CAN, CAN FD, CAN XL and LIN Interfaces, Automotive Ethernet, Analysis and Diagnostics

PCAN-USB FD / X6 / Pro FD/XL • PLIN-USB • PAE-Media Converter • PCAN-Router Pro FD • PCAN-Diag FD • PCAN-Explorer 7 (Analysis) • PCAN-Basic / PCAN-Developer 5 (APIs)
Interfaces: USB,PCI Express, Mini PCIe, M.2, CAN-to-Ethernet Gateways, CAN / CAN FD Routers,100 / 1000BASE-T1 Media Converter
Analysis: Trace, Transmit, Plot
Diagnostics: Protocol and Physical Layer

Ixxat — Multi-Bus Logging, Gateway and Residual Bus Simulation

Mobilizer Pro 822 (Test-Bench Computing Gateway) • CANnector (Logging and Gateway) • FRC-EP190 (Compact Gateway) • ACT (Advanced Configuration Tool)

Logging: Standalone, No PC Required • Gateway: Signal Mapping Across Buses • Residual Bus Simulation: ECU / Bus Emulation, MATLAB/Simulink

Buses: CAN FD • LIN • FlexRay • Automotive Ethernet • SENT • EtherCAT • Digital / Analog I/O

technica engineering — Automotive Ethernet Conversion, Capture and Switching

Media Converters (BASE-T1 to Standard Ethernet) • **Capture Modules** (Active Tap, In-Vehicle Logging) • **Enhanced Ethernet Switches** (MACsec, gPTP) • **IGNITE** (Network Simulation and Test)

Capture: Nanosecond Time Sync, Bench to Fleet
Switching: MACsec / MKA, PTPv2–gPTP Bridging, VLAN, Traffic Shaping

Interfaces: 10BASE-T1S • 100 / 1000BASE-T1 • 2.5 / 5 / 10GBASE-T1 • GMSL2/3 SerDes • ILaS

AUKUA — 3-in-1 Automotive Ethernet Test: Capture, Impairment and Traffic Generation

MGA8410 (4-Port, 3-in-1 Ethernet Test Platform)
Capture: Inline PCS / L2+, Protocol Analysis
Impairment: Delay, Jitter, Loss, Bandwidth
Traffic Generation: BER, RFC 2544, Latency
BASE-T: 100/1000 BASE-T1 • 2.5 / 5 / 10GBASE-T1/ 10BASE-T1S

Acute — PC-Based Vehicle Bus Decode: Logic Analyzers and Oscilloscopes

TB3016B (Logic Analyzer, Direct Di erential Decode) • MSO3000 / TS3124H (MSOs)
Decode and Trigger: CAN 2.0B • CAN FD • LIN • 10BASE-T1S • RS-485 / RS-422

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EMBEDDED HARDWARE SOLUTIONS

PROGRAMMERS & FLASHERS

From Bench to Production Line — In-System, Gang, Secure and Automated Programming for 115,000+ Devices

In-System and Production Flash Programmers

J-Link (Debug and Flash) • **J-Flash** (Programming Software) • Flasher Pro / **Pro XL** (Stand-Alone Production) • **Flasher Compact** + Hub-12 (Gang, up to 24 Channels) • **Flasher Secure** (Authenticated Off-Site Production) • **Flasher Portable PLUS** (Field Service)

Memory: Internal Flash, SPI / QSPI, CFI, NOR
Cores: Arm Cortex, RISC-V, Infineon TriCore AURIX TC2xx / TC3xx / TC4x, Renesas RX / RL78, PowerPC
Target Interfaces: JTAG, SWD, UART up to 50 MHz
Host Interfaces: USB 2.0 High-Speed, Ethernet, RS-232
Stand-Alone: Button / TTL Trigger, 128 MB Internal Image Storage

Stand-Alone Production Programmers and Debug Probes

Cyclone FX / LC (Production Programmers, ARM and Universal)
Multilink FX / Universal / ACP (Debug Probes)
Production: Stand-Alone SAP Images, Serialization, Encryption, Programming-Count Limits
Cores: Arm Cortex-M (NXP Kinetis / LPC / i.MX RT / S32K, STM32) • NXP Power Architecture / MPC5xxx • Infineon AURIX TC2xx / TC3xx • ST 8 / 16 / 32-bit NXP
Target Interfaces: SWD, JTAG, cJTAG, BDM up to 75 Mbit/s
Host Interfaces: USB, Ethernet, Serial, Wi-Fi (802.11b/g/n)

Universal and Automated IC Programming Systems

SuperPro 7500N / 7504N (Universal, up to 16 Sockets)
SuperPro 6100N / 610P (Universal)
SuperPro IS01 (In-System)
SuperBOT 5 Series (Automated, 2,500+ UPH)
Socket Adapters
Cores: ARM Cortex-M / Cortex-A / Cortex-R • ARM7 / ARM9 / ARM11 • 8051 • AVR • PIC • dsPIC • ST6 / ST7 • Power Architecture (e200z) • ColdFire
Memory: eMMC up to 64 GB, NAND, EEPROM, MCU
Automation: Tray / Tape, Laser Marking, HSM, MES Integration
Target Interfaces: Socket-Based ISP: JTAG, SWD, SPI, I^2C, UART, BDM, CAN, Microwire, RS-232
Stand-Alone: SD Card
Host Interfaces: USB 2.0, LAN

FPGA-Accelerated Flash Programming via JTAG

XJFlash (In-System, via On-Board FPGA) • **XJExpress** (USB SPI Flash Programmer) • **XJExpress-FPGA** (Stand-Alone, FPGA-Accelerated) • **XJLink2** (JTAG Controller) • **XJDeveloper** (Development Environment)

Speed: Up to 50× Faster than Boundary Scan
Memory: SPI Single / Dual / Quad / Octal, Parallel NOR, NAND (on request) • FPGAs: AMD Xilinx, Altera, Lattice, Microchip
Target Interfaces: JTAG (IEEE 1149.1), TCK up to 166 MHz •
Direct SPI: Single / Dual / Quad / Octal
Host Interfaces: USB 2.0 High-Speed (480 Mbit/s) • PXI (PXI-XJLink2)

EMBEDDED COMPUTING: SoMs/CoMs MODULES, BOARDS AND BOX PCs

Arm, x86 and Power Architecture System-on-Modules, SBCs and Box PCs

Embedded Modules (SoM / COM) • Carrier Boards • **Evaluation Kits** • **Single Board Computers** • **BoxPCs**
Form Factors: SMARC 2.1 • COM Express® Mini / Compact / Basic (Type 6 / Type 10) • COM-HPC® Mini • LGA / Socket
Processors: NXP i.MX 8 / i.MX 9 series • QorIQ® Layerscape (LS1028A / LX2160A)
TI Sitara AM62x / AM64x / AM65x • Intel® Core™ Ultra / Atom® • Renesas RZ/G2x
Made in Germany • Long-Term Availability • Design Support

Rugged Fanless Edge AI, Vision and In-Vehicle Computing

ECX-3000 (Workstation-Grade Fanless, Intel Core) • **EAC-5000 / EAC-7000** (NVIDIA Jetson AGX Orin / Thor) • **ACS-1000** (Automotive Computing System) • IVX-1000 (In-Vehicle Computing Workstation)
Edge AI: NVIDIA Jetson up to 2070 TFLOPS (Thor) / 275 TOPS (Orin) • Hailo-8 Acceleration • Up to 16 GMSL2 Cameras (FAKRA-Z) • PoE+ • 5G / 4G LTE / Wi-Fi 6
Interfaces: 2.5GbE / 10GbE • PoE+ • USB 3.1 • M.2 • Isolated CAN • Isolated DIO • RS-232/422/485 • Wide Temperature (up to –40 °C to 75 °C)
Applications: ADAS • Robotics / AMR • Rolling Stock • Machine Vision

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EMBEDDED HARDWARE SOLUTIONS

RUGGED COMPUTING AND INDUSTRIAL DATA ACQUISITION

DIAMOND SYSTEMS — Rugged SBCs, Ethernet Switches and Data Acquisition

SBCs: Jasper (COM Express Type 6) • Gemini (COM Express Compact Type 6) • Saturn (PCIe/104)
Integrated DAQ • Thick PCB • Latching connectors • Wide temperature

NVIDIA: Jackson (Orin NX / Orin Nano) • Osbourne (AGX Orin) Carriers and boxed systems • CSI / GMSL camera support • JetPack Linux

Ethernet Switches: SabreNet-12000 • SabreNet-24000 • EPS / EPSM Modules
Layer 2 / Layer 3 managed • Up to 24× 1GbE + 4× 10GbE • IEEE-1588 PTP

I/O & DAQ Modules: Analog I/O • Digital I/O • Serial • CAN 16-bit A/D • 12/16-bit D/A •PC/104 and PCIe MiniCard form factors

Rugged Systems: SabreCom • Geode
Fully enclosed • IP67 options • MIL-STD-810 tested

Form Factors: PCIe/104 • COM Express

ADDI-DATA — Industrial Data Acquisition: Sensors, Encoders and Real-Time I/O

APCIe / APCI Boards (Analog, Digital, Counter, Multifunction) • **APCIe-1711** (SSI /EnDat Encoder and Counter) • **MSX-E** (Intelligent Ethernet I/O Systems) • **MSX-Box-IPC-2** (PCIe DAQ Platform for Real-Time Edge Systems)

Sensors: Strain Gauges / Load Cells, IEPE Vibration, Thermocouples / Pt100 • Encoders: Incremental, SSI, EnDat 2.2 • I/O: Optically Isolated 24 V Digital, Analog I/O, Counter / PWM • Sync: µs-Level across MSX-E Systems

Bus Interfaces: PCI Express • PCI • CompactPCI • CompactPCI Serial • PC/104-Plus • Ethernet

SERIAL COMMUNICATION AND INDUSTRIAL I/O

SEALEVEL — Industrial I/O, Serial Connectivity and MIL-STD-810 Rugged Computers

SeaI/O (Modbus Remote I/O) • **SeaDAC** (USB Digital I/O)
SeaLINK (USB & Ethernet Serial) • **ULTRA COMM+** (PCIe / PCI Serial & Digital I/O)
Relio R1 (MIL-STD-810 Rugged Embedded Computers) • **Flexio** (Fanless Industrial Computers)

I/O: Isolated Inputs, Reed / Form C Relays, DAQ
Serial: RS-232 / 422 / 485
Protocols: Modbus TCP / RTU
Interfaces: USB / PCI Express / PCI / Ethernet

Fastcom — High-Speed Synchronous and Asynchronous Serial Communication Adapters

SuperFSCC / GSuperFSCC (Sync and Async, up to 50 Mbit/s) • **G422/8-PCIe** (8-Port Async, up to 25 Mbit/s) • Sync Com / Async Com (USB)

Protocols: HDLC / SDLC • Async (FC950 UARTs) • X-Sync (Character-Oriented Sync) • Full-Duplex DMA • Per-Port Configurable

Electrical Interfaces: RS-232,RS-422, RS-485,LVDS
Bus Interfaces: PCIe, PCI, PCI-104, CompactPCI, USB

CONNECTIVITY ICS AND MODULES: USB, ETHERNET AND WI-FI

WIZnet — Hardwired TCP/IP Ethernet, Wi-Fi and Serial-to-Ethernet

W5500 / W6100 / W6300 (Hardwired TCP/IP Ethernet Controllers) • **W7500** (Arm Cortex-M0 + TCP/IP MCU) • WIZ750SR (Serial-to-Ethernet Module) • **W232N** (Industrial RS232-to-Ethernet) • **WizFi360** (Wi-Fi Module)

Ethernet: Hardwired TCP/IP • IPv4 (W5500) / IPv4 & IPv6 Dual Stack (W6100 / W6300) • Up to 8 Sockets • Up to 91 Mbps (W6300)
Host: SPI up to 80 MHz • QSPI / 8-bit Bus (W6300)
Wi-Fi: 802.11 b/g/n • UART AT Commands
Serial: RS-232 / TTL / RS-422 / 485 to Ethernet

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EMBEDDED DIAGNOSTIC TOOLS

BOUNDARY-SCAN AND BOARD DEBUG

XJ TAG

PCB Diagnostics - JTAG Boundary-Scan Test, Debug and Fault Diagnosis

XJDeveloper (Test Development) • **XJRunner** (Production Test) **XJInvestigator** (Fault Diagnosis and Rework) • **XJAnalyser** (Visual Pin-Level Debug) • **XJLink2** (JTAG Controller)

Test: Connection Test (Shorts, Opens, Stuck-At), Non-JTAG Device Tests • Debug: Real-Time Pin Control, Waveform View • Diagnosis: Schematic and Layout Viewer

Standards: IEEE 1149.1, IEEE 1149.6 • Interfaces: JTAG, TCK up to 166 MHz • Host: USB 2.0, PXI

TEST, INSPECTION AND REWORK EQUIPMENT

Acute PC-based T&M Instruments

PC-Based Oscilloscopes, Logic Analyzers and Protocol Analyzers

MSO 3000 Series (Mixed signal oscilloscopes) – 4 analog channels, Sampling rate 1GS/s, 200MHz bandwidth, Data Logger, Digital voltmeter and Frequency Counter, Logic Analyzer, 16 digital channels.
Travel Scope 3000 Series(Digital signal oscilloscopes) - 4 analog channels ,Sampling rate 1GS/s, 200MHz bandwidth
Travel Logic TL 3000/TL 4000 Series (Analog and Digital channels) - 34 digital channels, total memory 8GB
LA4000 Series Logic Analyzer - 136 digital channels, 4GHz Timing Analysis/400MHz State Analysis

PSR REWORK

Focused IR SMT and BGA Rework Stations

IR-E3 Evolution (SMT / BGA Rework) • **IR-E6 Evolution XL** (Large-Board Rework)

Rework: Focused IR Top Heating, Quartz IR Board Preheating
Components: BGA, QFN, CSP, LED, SMD up to 55 × 55 mm
Boards: Micro to XL PCBs up to 460 × 620 mm

Vision ENGINEERING

Ergonomic Stereo Microscopes, Digital Inspection and Non-Contact Measurement Products

Mantis (Eyepiece-less Stereo Microscope) • **EVO CAM AURA** (4K Digital Microscope) • **EVO CAM HALO** (Digital Microscope) • **Lynx EVO** (Ergonomic Stereo Microscope) • **DRV-Z1** (3D Digital Stereo Inspection) • **ProteQ VISO** (3D Digital Microscope)

Inspection: Optical and Digital 3D Viewing, PCB Inspection, Electronic Component Inspection, Precision Assembly and Quality Control.

Imaging & Measurement: High-Magnification Digital Imaging, Optical Zoom, On-Screen Measurement, 3D Viewing, Image Capture and Documentation.

POWER MEASUREMENT AND ANALYSIS

Monsoon Solutions Inc.

Device Power Monitoring for Mobile, IoT and Semiconductor Devices

High Voltage Power Monitor (HVPM) • **Low Voltage Power Monitor (LVPM)** • **PowerTool** Software

Supply and Measure: Main Channel 0.8 V to 13.5 V, up to 6 A Continuous
USB Channel 2.1 V to 5.4 V
Aux Channel 0.5 V to 13 V
Sampling: 5 kHz

Quarch Technology

Power Analysis: DC Rails (Storage, PCIe and USB-C Devices) to Single-Phase & Three Phase AC

Power Analysis Module (PAM) • **AC Power Analyser** (Single-Phase, IEC x3) • 3-Phase AC Power Analyser (up to 63 A) • **Quarch Power Studio** (QPS) • **Quarchpy** (Python API)

Analyze: Long-Duration Traces, Digital Sidebands
DC: Voltage, Current and Power per Rail (12 V, 3V3 / 5 V), 250 kHz Sampling
AC: Single-Phase up to 16 A and 400 V AC, 3-Phase up to 63 A, 8 kS/s Sampling
Host: USB, LAN

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HELPING YOU ENGINEER EMBEDDED SUCCESS

Trusted tools and solutions for building fast, reliable, safe embedded systems

ONE COMPREHENSIVE PRODUCT PORTFOLIO – DIFFERENT INDUSTRIES

Automotive • Semiconductor • Aerospace and Defense • Industrial Automation • Medical • IoT and Edge AI

AEROSPACE AND DEFENSE

Rugged hardware, deterministic networking and certified software for demanding environments, with project support for DO-178C and MIL-STD.

- MIL-STD-810-tested rugged computers, PC/104 and COM Express SBCs with integrated data acquisition
- TSN, HSR/PRP and Rugged networking for deterministic communication
- Safety-certified RTOS and hypervisor for mixed-criticality designs
- TÜV-certified code coverage and model analysis to support verification evidence

INDUSTRIAL AUTOMATION

Real-time connectivity and I/O for the plant floor.

- EtherCAT master, simulation and diagnostics software
- Industrial DAQ: strain gauge, vibration, thermocouple and encoder inputs
- Serial and Modbus connectivity, with RS-232/422/485 up to 50 Mbit/s synchronous
- Fanless industrial and edge computers for harsh environments (40 °C to 75 °C)

MEDICAL

Safety-certified software foundations and verification for regulated devices.

- RTOS and hypervisor certified up to IEC 62304 Class C
- TÜV-certified code coverage up to MC/DC for IEC 62304
- Traceable test automation and static model analysis for safety evidence
- System-on-modules with long-term availability and design support

IOT AND EDGE AI

Compute, connectivity and power tools for devices at the edge.

- Rugged, fanless edge AI systems: NVIDIA Jetson up to 275 TOPS and Hailo-8 acceleration
- Multi-camera vision with up to 16 GMSL2 cameras
- USB, hardwired TCP/IP Ethernet and Wi-Fi connectivity ICs and modules
- Power profiling for battery-powered devices, and Bluetooth RF test

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GES SOLUTIONS FOR AUTOMOTIVE INDUSTRY

Gopalam Embedded Systems (GES) provides a comprehensive portfolio of hardware and software embedded development and debug tools purpose-built for the automotive and mobility industry, spanning the entire lifecycle-from design deployment.

KEY AUTOMOTIVE AND MOBILITY SOLUTIONS FROM GES:

- **Safety-Certified RTOS and Hypervisor**: QNX® OS for Safety 8.0 and QNX® Hypervisor for Safety 8.0 give software-defined vehicle, ADAS and digital cockpit platforms a pre-certified foundation that runs safety-critical and general-purpose workloads side by side on a single SoC. Both are certified to ISO 26262 ASIL D, IEC 61508 SIL 3 and IEC 62304 Class C. QNX OS for Safety is also certified to ISO/SAE 21434 for automotive cybersecurity. Both support Armv8, Armv9 and x86-64 for automotive, industrial, robotics and medical systems.

- **Safety-Qualified Compilers, RTOS and AURIX Middleware:** HighTec GCC- and LLVM-based C/C++ toolchains and the industry's first Rust compiler qualified to ISO 26262 ASIL D let teams combine proven C/C++ with memory-safe Rust. HighTec Qkit provides the tool qualification evidence. The PXROS-HR multicore RTOS is certified to ISO 26262 ASIL D and IEC 61508 SIL 3. HighTec also supports Infineon MCAL and SafeTlib integration on AURIX TC2x, TC3x and TC4x. The compilers target TriCore/AURIX, Arm Cortex-M/R/A, RISC-V, Power Architecture, Renesas RH850 and GTM/MCS.

- **Automotive Ethernet Test Solutions**: AUKUA single 3-in-1 Ethernet test and monitoring platform that combines inline packet capture and protocol analysis, network impairment emulation, and traffic generation. Teams can validate automotive ECUs and networks under real-world conditions. It supports 100/1000BASE-T1, 2.5G/5G/10GBASE-T1 and 1000BASE-RH, with 1 ns latency measurement and BASE-T to BASE-T1 media conversion.

- **Automotive Network Validation Solutions**: Technica and PEAK-System provide test and diagnostic tools for in-vehicle networks, from design to validation. Technica supports zonal architectures and TSN. It gives unified visibility into in-vehicle network behaviour across benches, vehicles and fleets, with gPTP/PTPv2 time synchronisation. It also covers media conversion, traffic segmentation, mirroring and controlled topologies, plus scalable test-bench and HIL infrastructure. For CAN, CAN FD, CAN XL and LIN networks, PEAK-System adds USB, PCIe, M.2 and PC/104 interfaces, routers, gateways and portable diagnostic tools. Its software for monitoring, analysing and simulating buses is included, along with drivers and APIs for test automation.

With deep technical expertise and partnerships with global technology leaders, GES is committed to supporting automotive and mobility innovation. We help engineers design, debug and validate safer, smarter mobility systems.

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GES SOLUTIONS FOR SEMICONDUCTOR INDUSTRY

Gopalam Embedded Systems Pte Ltd (GES), together with the ESA Group of companies, brings the semiconductor industry an integrated portfolio of hardware and software tools for embedded development, debug and validation. The portfolio supports the chip lifecycle from pre-silicon design and bring-up through validation, compliance testing, production programming and fab-floor automation.

KEY SEMICONDUCTOR SOLUTIONS FROM GES INCLUDE:

- **Ethernet Silicon Test Solutions**: Aukua MGA8410 and XGA4250 3-in-1 Ethernet test platforms combine traffic generation, inline packet capture and protocol analysis, and network impairment emulation. The MGA8410 covers 10 Mbps to 10 Gbps, including Automotive Ethernet BASE-T1 and BASE-RH. The XGA4250 covers 1 GbE to 25 GbE. Together they validate networking and Automotive Ethernet silicon under real network conditions.

- **Digital Protocol Solutions**: Acute Technology BusFinder BF7264 Pro and BF7264B+ protocol analyzers decode and validate eMMC 5.1, UFS (MIPI M-PHY), MIPI D-PHY and eDP traffic at the command and signal level, giving bring-up teams real-time, hardware-level visibility into memory and display interfaces.

- **High-Speed Interface Protocol Solutions**: Serial Cables Gen6 PCIe / CXL cables, retimers, adapters and JBOF platforms pair with Quarch Technology Gen6 hot-swap breakers, HD PPM and MegaPPM programmable power modules, and Power Analysis Modules with Quarch Power Studio. Together they inject real-world faults (dropped lanes, brownouts, glitches and sudden power loss) and trace power over hours to days, helping validate storage and data center silicon for resilient, production-grade deployment

- **Wireless & RF Qualification**: The RF Creations moreph30 RF physical-layer analyzer and blueSPY wideband protocol analyzer test Bluetooth (BR/EDR, LE, LE Audio, Channel Sounding), Wi-Fi and 802.15.4 SoCs, covering both RF performance and protocol behavior. The moreph30 runs the Bluetooth RF-PHY test specification tests used in Bluetooth SIG qualification without external test equipment, so certification issues are caught early.

- **Comprehensive Charging Test Solutions**: Accelerate R&D, reduce compliance costs and scale production without quality trade-offs using GRL Platform Solutions test equipment. This includes the WPC-approved GRL-C3 Qi wireless charging testers and the USB-IF-approved GRL-USB-PD-C2-EPR tester for USB Power Delivery wired charging up to 240 W EPR. The portfolio is designed for the board-test needs of semiconductor IC makers and OEM / ODM manufacturers.

- **Production & Fab Automation Protocol Solutions**: acontis EC-Master EtherCAT MainDevice software, with EC-Engineer configuration and EC-Inspector diagnostics, delivers production-grade, low-latency real-time motion control that keeps fab-floor equipment running with precision.

With deep technical expertise and long-standing partnerships with global technology vendors, GES is committed to supporting India's semiconductor journey, equipping engineers with the tools they need for design, debug, validation and manufacturing.

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GES SOLUTIONS FOR AEROSPACE AND DEFENSE

Rugged, Deterministic, Secure: From Mission Computers and MIL-STD Networks to Tactical Network Test and Board Sustainment

Gopalam Embedded Systems (GES) brings aerospace and defense engineering teams a portfolio of rugged computing, deterministic networking, safety software and test tools. Together they support mission systems from design and integration through validation, production and long-term sustainment, on land, in the air and at sea.

KEY AEROSPACE AND DEFENSE SOLUTIONS FROM GES:

- **Boundary-Scan Board Test and Sustainment:** XJTAG boundary-scan solutions find shorts and opens on nets that have no test points or are hidden under BGAs. Defense PSUs and electronics manufacturers, and ATE solution providers use XJTAG to diagnose avionics board faults and meet tight test demands on missile system boards. It supports production test and long-term repair of high-reliability defense electronics.
- **Rugged Mission Computing:** Diamond Systems rugged single-board computers, I/O expansion modules, **Epsilon** and **SabreNet** managed Ethernet switches, and **SABRE** mission computing systems are deployed in aerospace and defense COTS applications. **SABRE** rugged mission computing systems are designed for compliance with MIL-STD-461, MIL-STD-704 and MIL-STD-1275.
- **Deterministic and Secure Military Networking:**
  - **Relyum Rugged** products from **SoC-e** include TSN switches **(MIL-TSN, XMC-TSN),** high-availability switch routers **(MIL-SR),** secure switch routers **(MIL-SSR)** and time servers **(MIL-GM).** They are certified to MIL-STD-810, MIL-STD-461, MIL-STD-1275, MIL-STD-704 and TEMPEST.
  - **SoC-e** FPGA IP cores add HSR/PRP zero-recovery redundancy, TSN, sub-microsecond time synchronization and Layer 2 / Layer 3 encryption. Together they help build a reliable digital backbone for land, airborne and naval LAN systems and ground-to-air communications.
- **Tactical and Satellite Network Test:** The Aukua MGA8410 recreates field conditions in the lab: high latency, constrained bandwidth, intermittent connectivity, congestion and packet loss. It is used for tactical, satellite (including LEO), airborne and vehicle-mounted communications. Inline capture, protocol analysis, BER testing and one-way latency measurement let teams validate radios, terminals and networks before deployment.
- **Safety RTOS, Debug and Secure Production:**
  - **SEGGER embOS-Ultra-Safe** is certified to IEC 61508 SIL 3, ISO 26262 ASIL D and IEC 62304 Class C. Certification for aviation and space can be addressed on request.
  - **J-Link** debug probes support development. **Flasher Secure** protects firmware and IP in authenticated off-site production.
- **Long-Life Embedded Modules: TQ-Embedded** system-on-modules power crew operating panels, inflight infotainment and aircraft communication systems. TQ minimodules offer long-term availability of at least 15 years, and TQ Aviation develops and manufactures to EN 9100.

With deep technical expertise and long-standing partnerships with global technology vendors, GES is committed to supporting aerospace and defense programs, helping engineers design, validate and sustain rugged, reliable and secure mission systems.

LEADING ONE STOP PROVIDER FOR EMBEDDED SYSTEMS

ASEAN

At GES, we aspire to support customers with our extensive knowledge and vast experience in embedded systems to help them innovate and deliver superior embedded designs. We enable our customers to concentrate on their core business problems while relying on us to quickly recommend, and build tailored solutions for their embedded development. We cater to the a broad range of needs across various verticals like automotive, aerospace, defense, education, electronics design/manufacturing, energy, industrial automation, instrumentation, medical devices, military, semiconductor and telecom/datacom.

MEMBERSHIPS

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