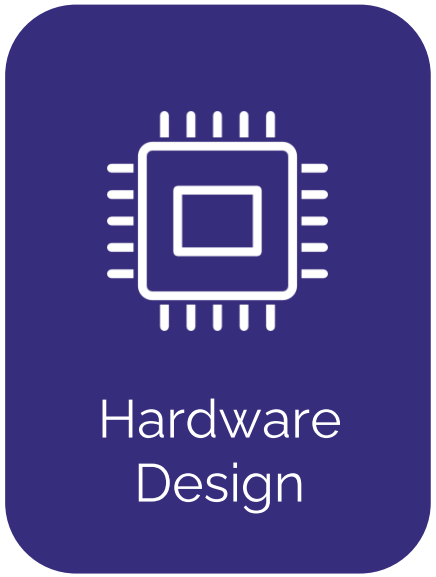
Qmax Systems

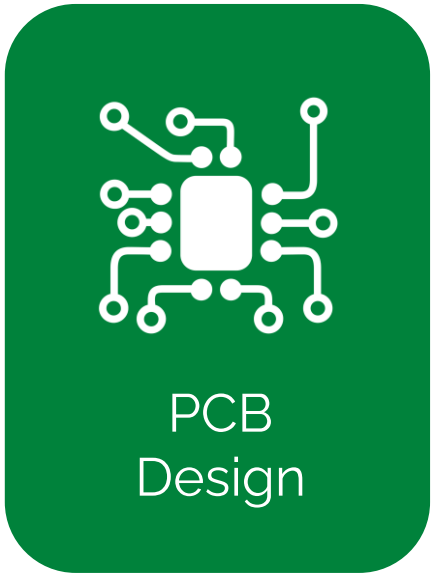
Electronics Engineering Services

Qmax Introduction

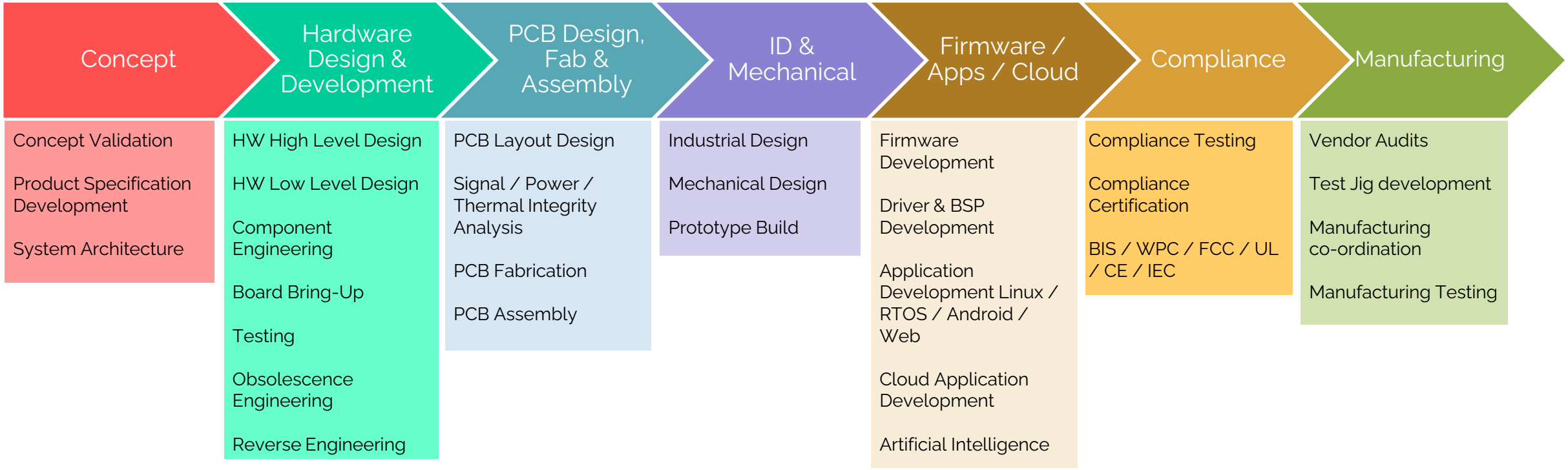
- An Electronics Engineering and R&D Services company
- Complete End to End Product Development, from Design to Manufacturing
- Hardware Design, Firmware development, PCB Design and Industrial Design
- Strong Application development expertise
- 45 Member R&D Team in Chennai, India
- Sales offices in the US and Belgium

Services Offered





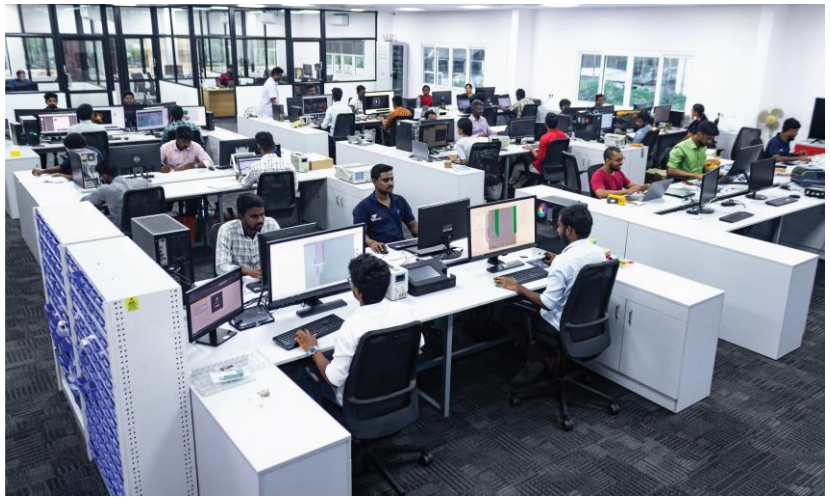
Design to Manufacturing



Domain Experience – Partial Product Portfolio

- **Automotive |** OBD-II, Motor Controllers, BMS, Bi-Directional On-Board Charger, Body Electronics, Connectivity, Kneeling and Levelling System
- **Industrial |** Process Controllers, Field Bus, IIOT, HMI, Test Automation, Robotics Controller, Energy Measurement, IO Controllers, Lubrication Controller
- **Aerospace |** Structural Health Monitoring System, Instrumentation
- **Military |** Tactical Communication, Antenna Stabilization Systems, SDR, RF Power Amplifiers
- **Medical |** Nanoscope, EMG Device, Wireless ECG, Lab Dry Bath
- **Commercial |** Wi-Fi Routers and AP, Security Controller, IOT Gateway, BLE Mouse, 360 Degree Camera, Bluetooth Padlock, Coffee Vending Machine, Digital Signage Player, USB 3.2 Hub

Infrastructure



Quality Assurance

- ISO 9001:2015 Certified Company
- Qmax Systems has established, documented, and implemented a Quality Management System.
- The system is maintained and continually improved using the quality policy, quality objectives, internal & external review results, analysis of data, corrective and preventive action and periodic management reviews.

VERITAS

CERTIFICATE

OF REGISTRATION

This is to certify that the Management System of

Qmax Systems India Pvt Ltd

310-2A, Rukmani Nagar, 4th Street, Poonamallee, Chennai -600056, Tamil Nadu, India.

has been assessed and registered by Veritas System Quality Certificates as conforming to the requirements of

ISO 9001:2015

Quality Management System

The Quality Management System is applicable to:

To Provide Electronics Design, Embedded Systems Development, Production & Engineering services as per customer requirements across Industries.

IAF/EA-NACE Code: 19-26.12

Certificate No : VSQC099-42100115 - R1

Initial Certificate Date : 23-07-2022

Surveillance due date / Certificate expiry date: 22-07-2024

Re-certification due date: 22-07-2025

Note: Validity of this certificate is subject to successfully completion of each annual surveillance audit on or before due date, In case surveillance audit is not conducted then this certificate shall be suspended/cancelled.

Authorised Signatory

Veritas System Quality Certificates Issuing LLC

P.O. Box: 122982, Al Karama, Dubai, United Arab Emirates.

CB-QMS-099

FSC MIX FSC® C118414

Issue No: 01

This certificate remains valid while the holder maintains the management system in accordance with the standard(s) above, which will be periodically audited by Veritas System Quality Certificates Issuing LLC.

This certificate remains the property of Veritas System Quality Certificates Issuing LLC and must be returned on request. In the issuance of this certificate, Veritas System Quality Certificates Issuing LLC no liability to any party other than to the client, and then only in accordance with the agreed upon certification agreement. Validity of this certificate may be confirmed at www.veritasassurance.com, directly through QR code by using any device with correct information or email to admin@veritasassurance.com.

www.veritasassurance.com

Hardware Capabilities

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Hardware Expertise

- High-Speed Digital Designs
- Analog and Mixed Signal Designs
- Power Electronics
- RF Designs
- Obsolescence / Component Engineering

Chipset Expertise

In-House Test Equipment

- Keysight Oscilloscopes
- Rohde & Schwarz - Wideband Radio Communication Tester - CMW-500
- Rigol Programmable Power Supplies
- Fluke Digital Multimeters
- Programmable Function Generators
- Flir Thermal Camera
- Uni-T IR Thermometers
- Fluke Temperature Logger
- Temperature Chambers
- Acoustic Testing Chamber
- Drop Test Chamber

Embedded Firmware Capabilities

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Firmware Capabilities

	Embedded	OS	Apps & Cloud
Capabilities	• Bare Metal C , C_++ • Boot loader • OTA FW Upgrades • Protocol Stack • Low Power & Memory design • Boot time optimisation • Rich GUI • Micro Python	• RTOS • Embedded Linux • Device Drivers • Video/Audio/Camera • Wi-Fi/BLE/LTE • Routers – OPenWRT	• IOT Platform • Edge Processing • Web & App Dashboard • REST API • MEAN Development
Security	• Secure Boot • TPM	• Secure boot • TPM • SSL / SSH • Encrypted Disc	• HTTPS • Secure MQTT • SSL User login

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Protocols & Interfaces

IOT Capabilities

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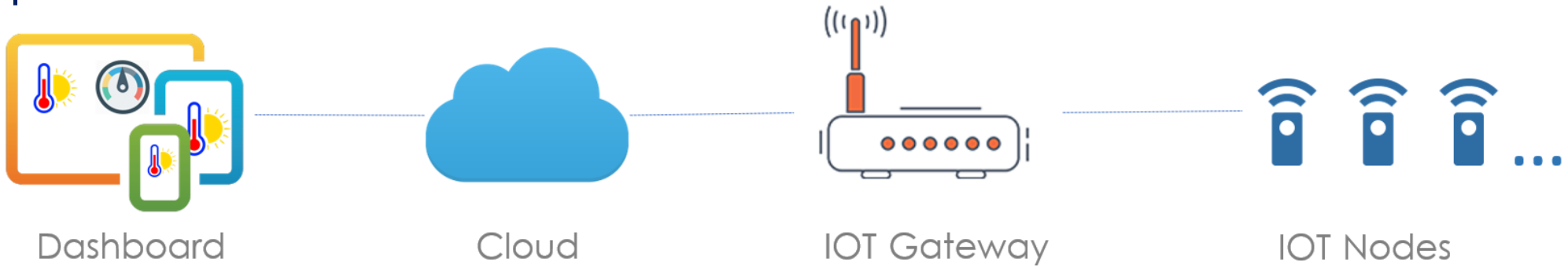
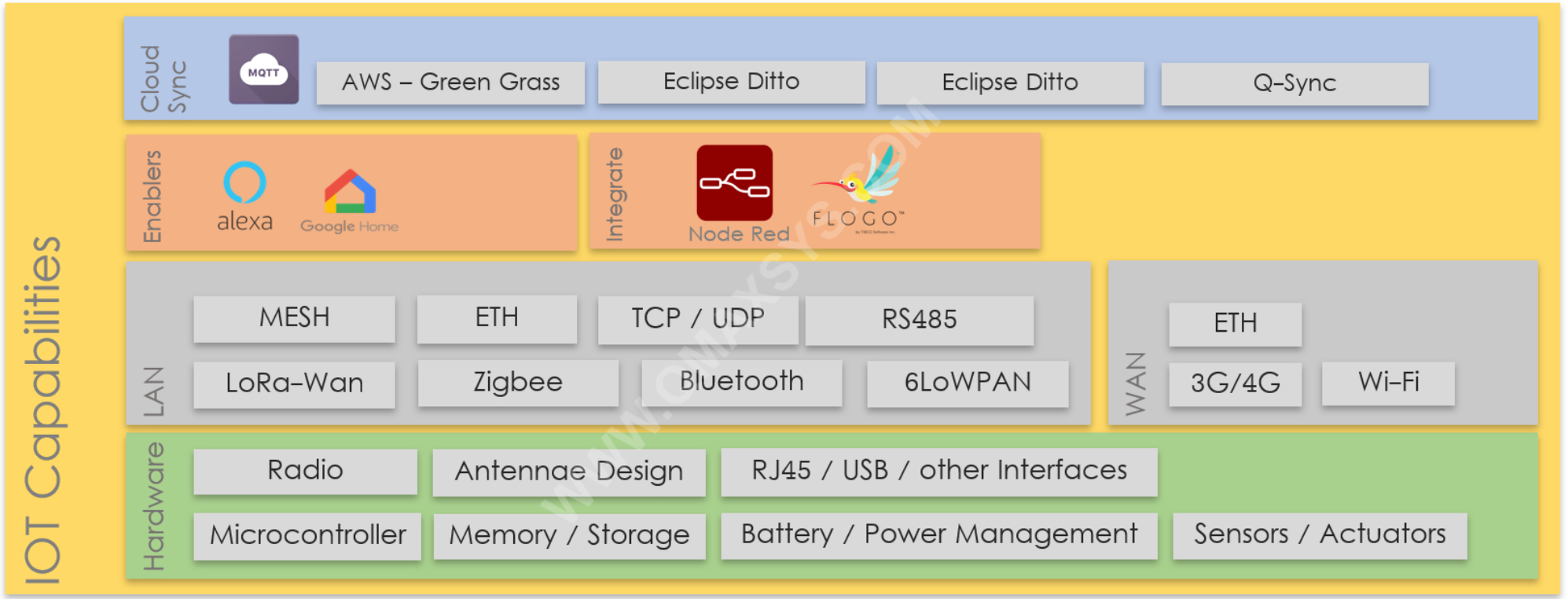
IOT Capabilities





PCB Design Capabilities

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PCB Design Services

- Schematics Entry
- Library Development : Schematic Symbol / PCB Footprint / 3D Model
- PCB Design
- SI / PI / EMI Analysis
- Thermal Analysis
- Component Engineering
- CAD Translation and Migration
- Reverse Engineering

PCB Design Expertise

- Highly Dense and Complex PCB Engineering
- High Speed Digital / Analog and Mixed Signal
- High Voltage / High Current / Power Electronics
- RF Designs
- Compliance Engineering
- DFM Analysis
- Domain expertise in Automotive / Aerospace / Medical / Industrial / EV / Networking / Wireless / Military
- Solid Expertise in standards IPC, UL / FCC / IEC / BIS

PCB Tools Expertise

- PCB Layout - Cadence Allegro / Mentor PADS / Expedition / Altium
- Schematic Entry - Concept HDL / OrCAD Capture / Altium / PADS Logic
- Signal Integrity / Power Integrity - Sigrity / ADS / HFSS
- Thermal Analysis – FloTHERM / Icepak / Solidworks
- CAM - CAM 350 / Genesis / Valor Enterprise 3000

Mechanical & Industrial Design Capabilities

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Mechanical Design Services

- Plastic Enclosure Design for Electronics
- Rugged Metal Enclosures for Military Application – MIL-STD-810 / JSS55555
- Full Mechanical Systems Design
- Design For Manufacturing
- Thermal Analysis
- Structural Design and Analysis – Vibration / Impact / Drop
- Ingress Protection Compliance

Industrial Design Services

- Design Research
- Product Story and Sketches
- Product Visualization
- CAD and 3D Modelling
- UI & UX design
- Photorealistic Images
- Photorealistic Product Animation Videos
- Rapid Prototyping – CNC / FDM / SLA / SLS

Case Studies

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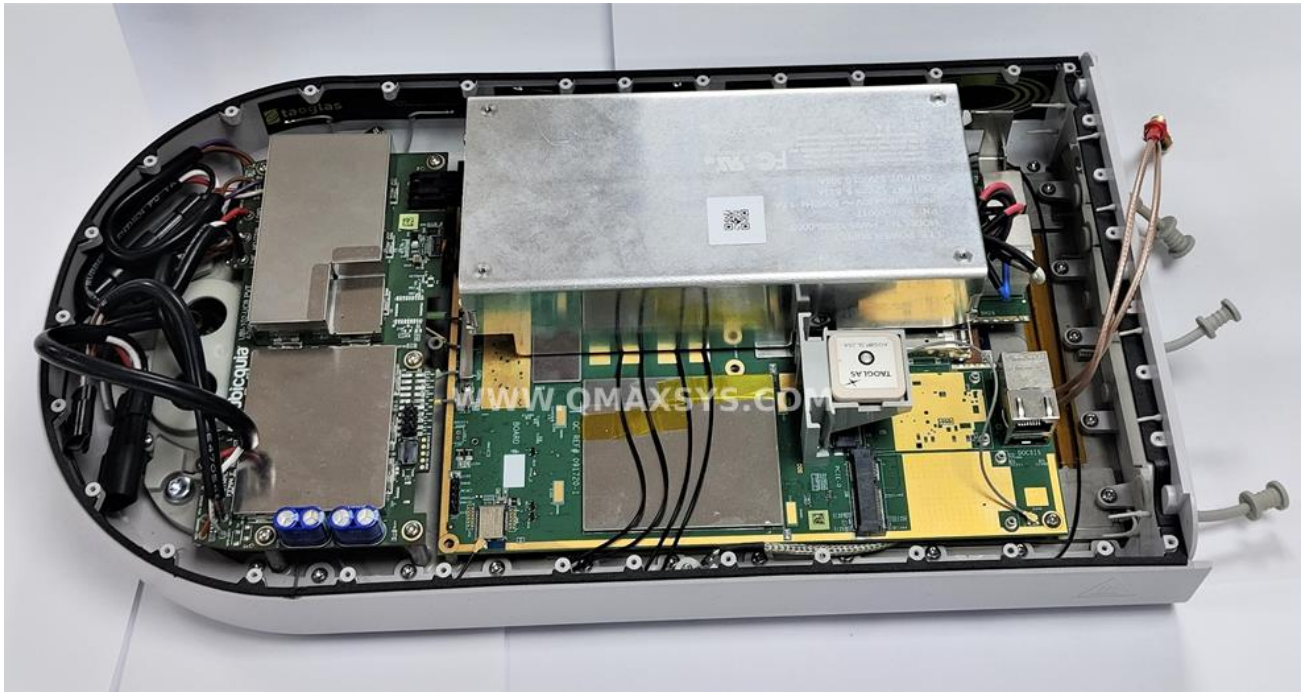
11ax Wireless AP - HW Spec

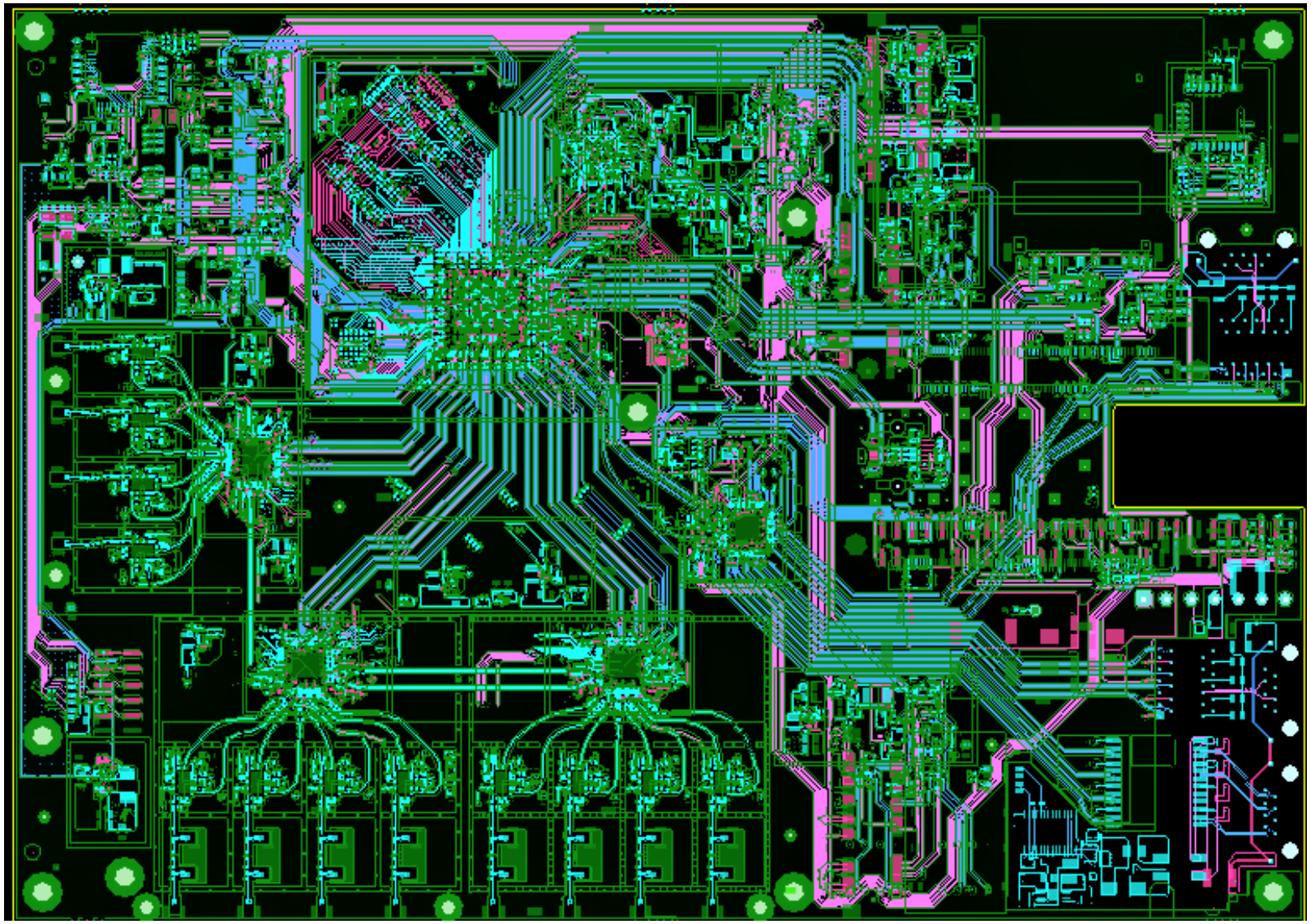
- Qualcomm IPQ8078A SoC
- 8x8 on 5Ghz and 4x4 on 2.4GHz
- MU - MIMO
- BLE / SFP+, GigE Ports
- LTE / GPS / POE
- USB / PCIe Ports
- Complete HW Development
- Thermal / SI / PI Analysis
- High Density BGA Packages
- Multiple RF interfaces
- Size / Mechanical Constraints



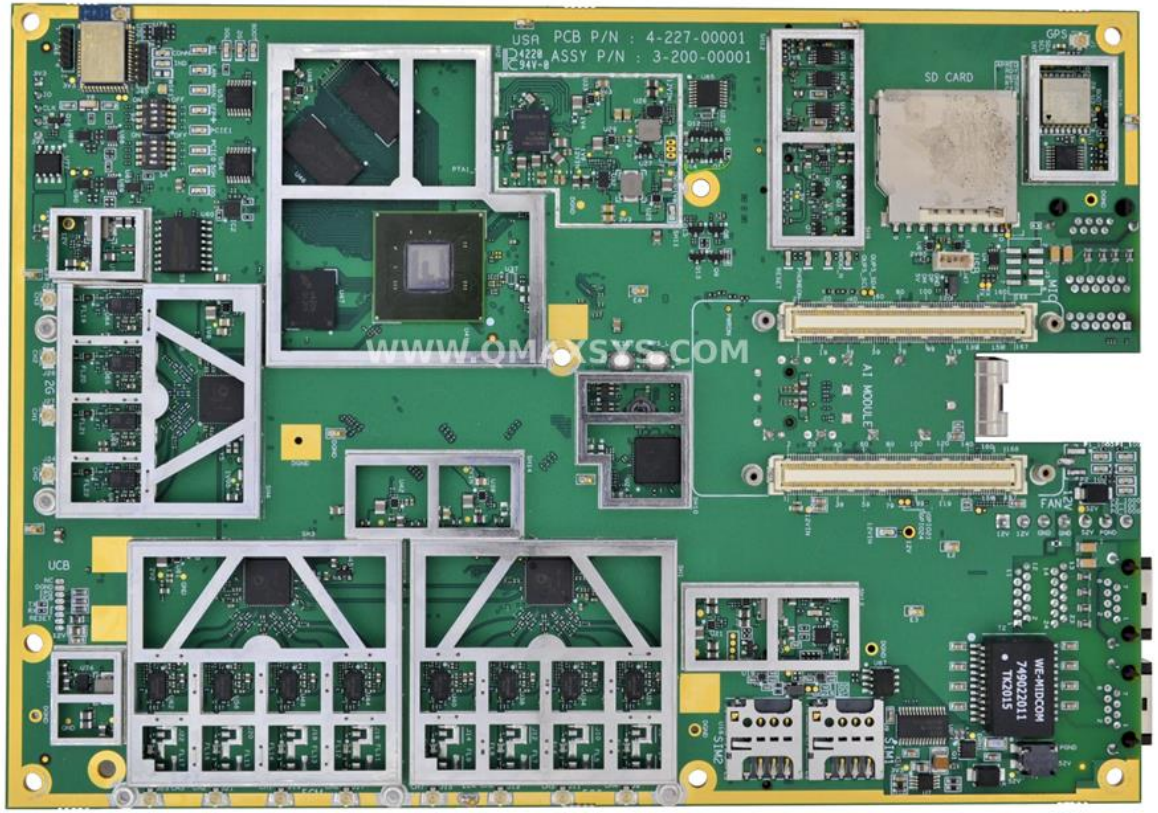
Note: Enclosure not designed by Qmax

11ax Wireless AP - PCB Layout

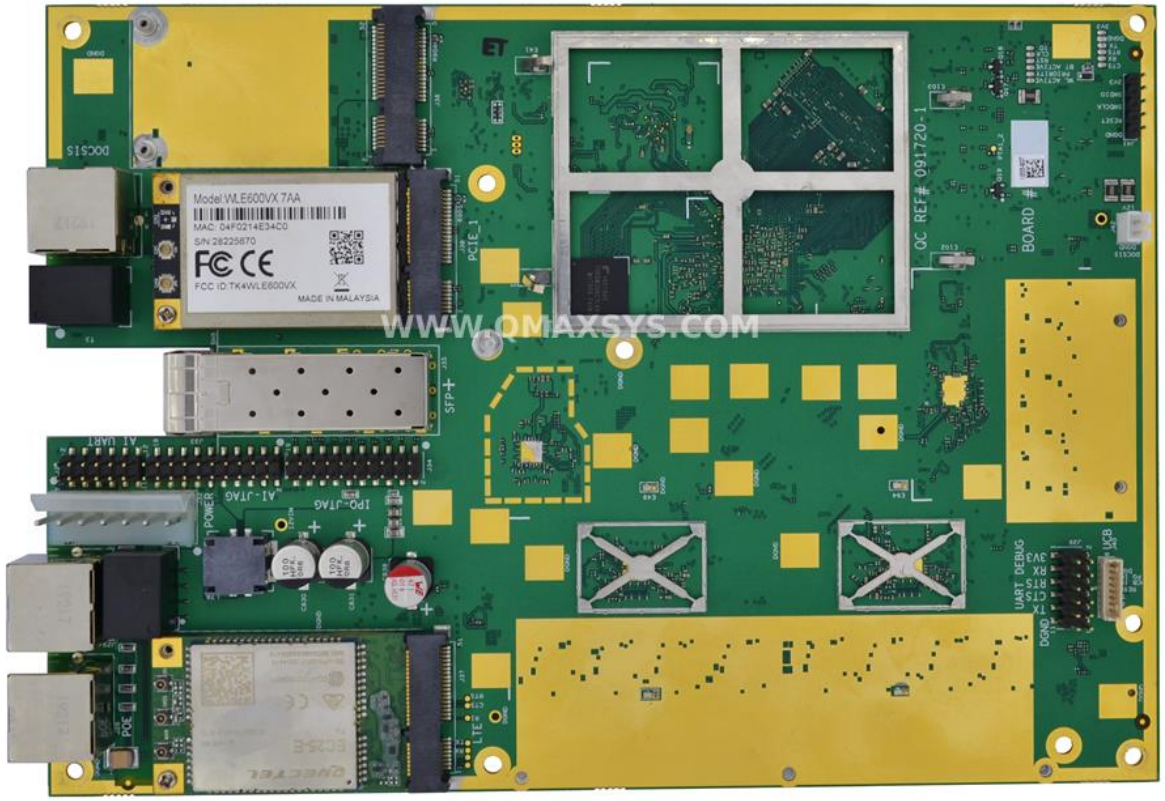
- Layer count : 8
- High speed digital
- Multiple RF
- 0.5mm Pitch BGAs / DQFN
- EMI / EMC Shielding
- Thermal Design
- Mechanical Constraints



11ax Wireless AP - PCBA



PCBA - Top



PCBA - Bottom

Digital Signage with HDMI Input

- Full Product Development - HW / FW / PCB / ID
- Rockchip 3568 Chipset
- HDMI Input – HDCP compliant
- POE
- 4K HDMI Output
- 0.96" OLED Display
- Wi-Fi / Bluetooth / Gigabit Ethernet
- 4GB DDR4 RAM / 16GB eMMC
- USB 2.0 / 3.0
- RTC / IR Remote / Extender
- GPIOs / Audio OUT / Status LED

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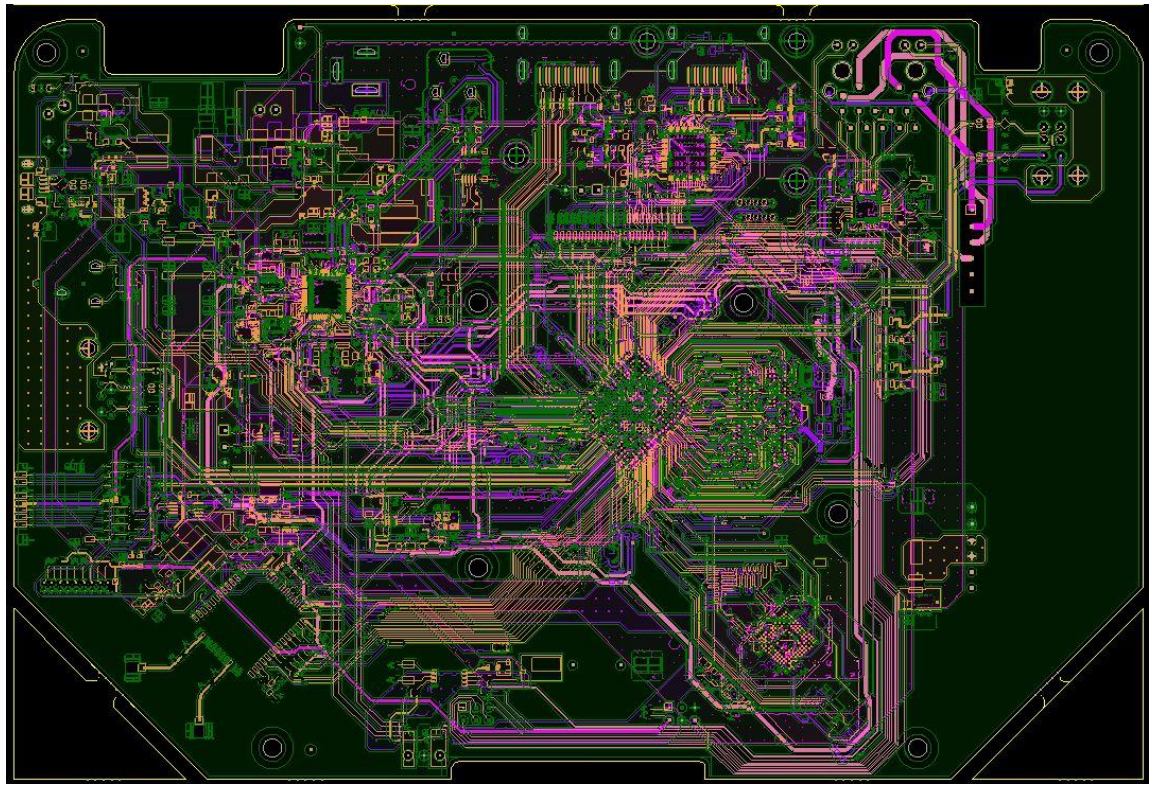
Digital Signage with HDMI Input

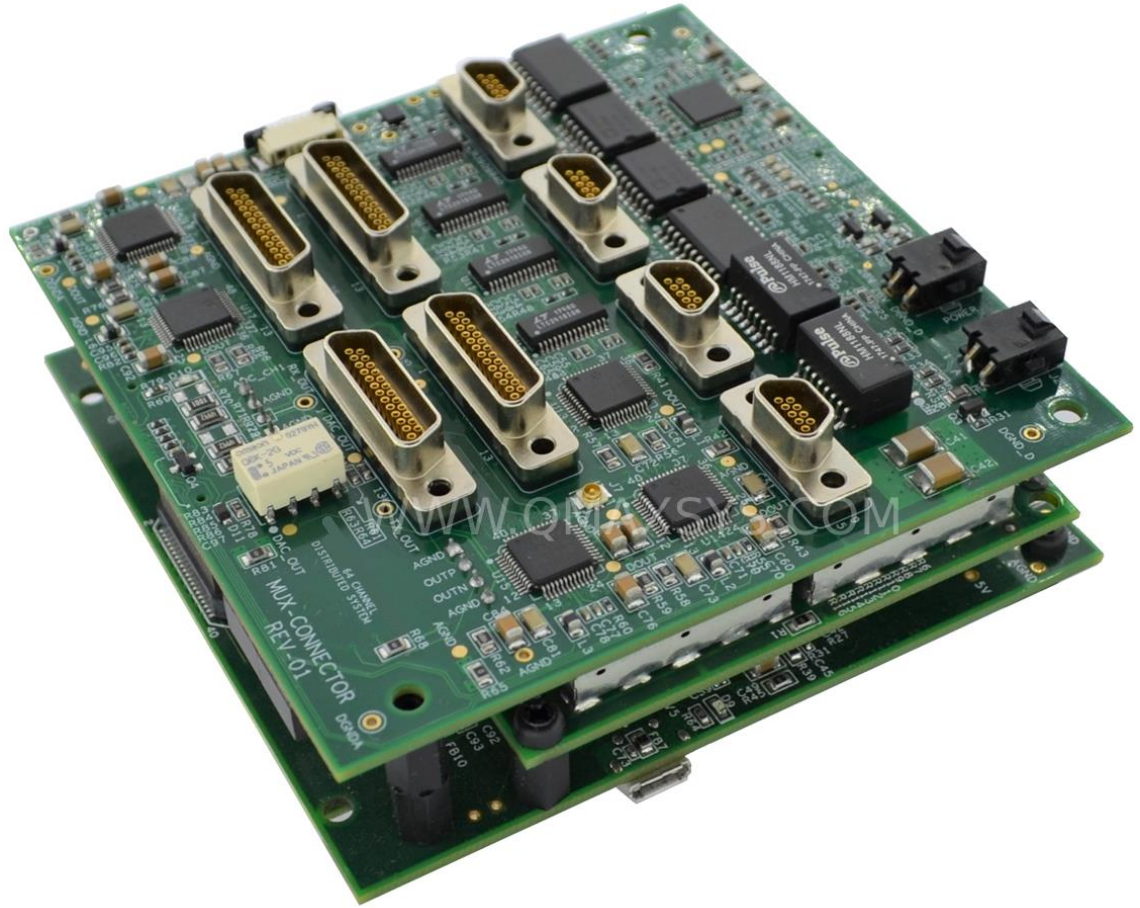


Connected On-board Diagnostic Device

- Full Product Development - HW / FW / PCB / ID
- ARM Cortex A7 CPU / 1 Gb DDR3 / 4Gb eMMC
- Linux / Over the Air Firmware update (OTAP)
- Wi-Fi / BLE 4.1 / LTE-M / GPS
- LCD Display
- Native CAN / Ethernet / USB 2.0
- Accelerometer / Magnetometer / LEDS
- 2000mAh Battery Wireless Charging

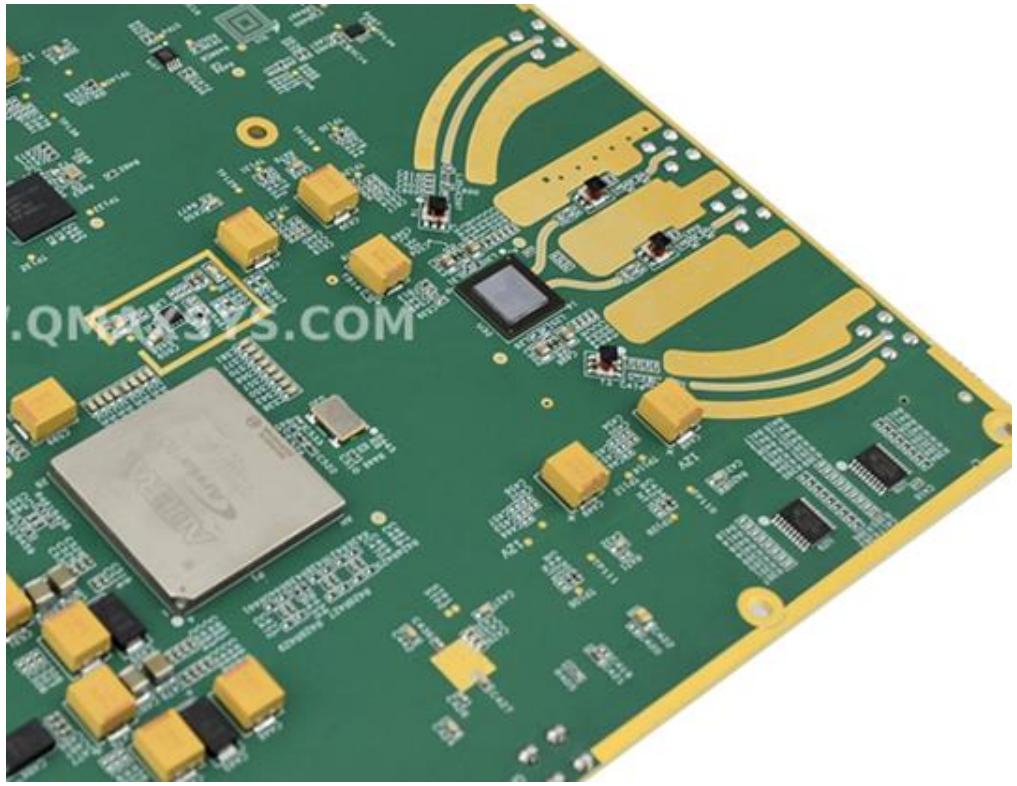
Aerospace Structural Health Monitoring System

- Altera A10 FPGA for Digital Signal processing
- Low Power, Light Weight, Compact Design
- Complete HW / FPGA / Enclosure design
- Ultra-Low Noise / SNR of 50dB
- High Speed ADCs / DACs / Sync – E / HV Mux
- Data acquisition system for AI enabled Air Frame Structural Analysis



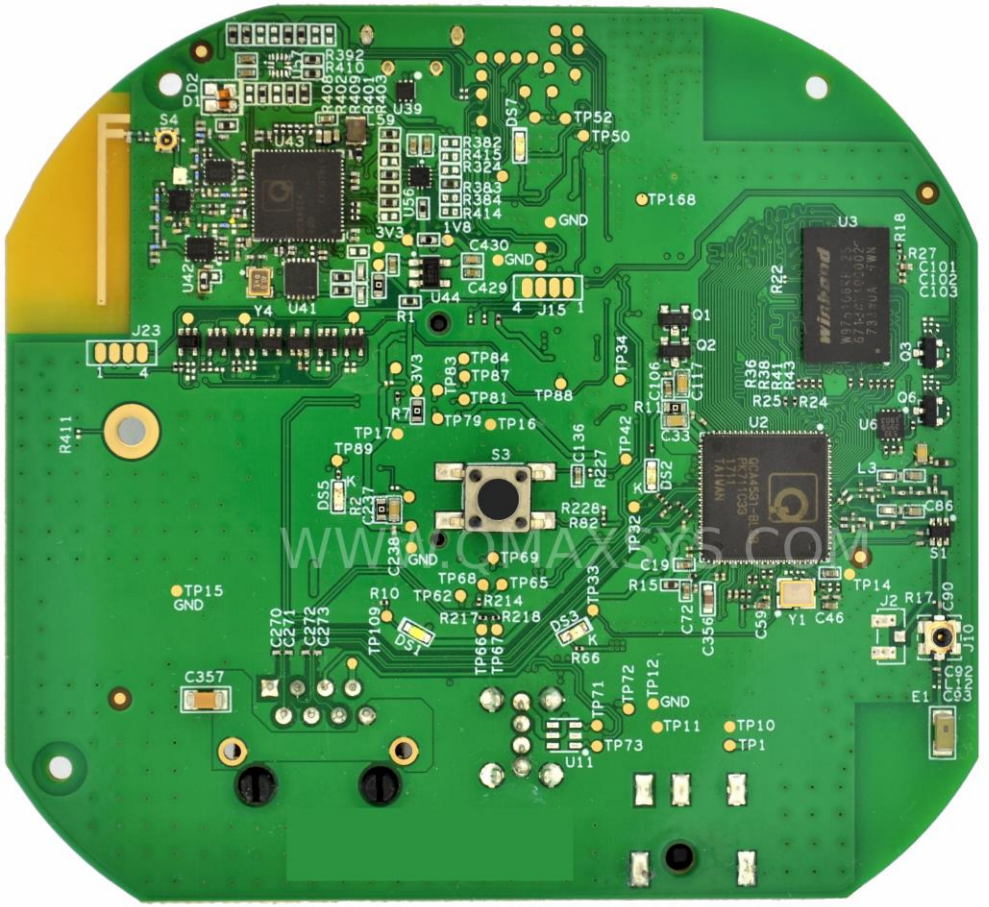
High Speed Analog / RF Board Design

- FPGA: Arria 10
- RF Transceiver : AD9xxx
- 16-bit ADC
- Rx BW: 8 MHz to 100 MHz
- Digital Interface with FPGA (Speed up to 6.4Ghz)
- Dual RX and TX with ORX
- PCIe / Ethernet



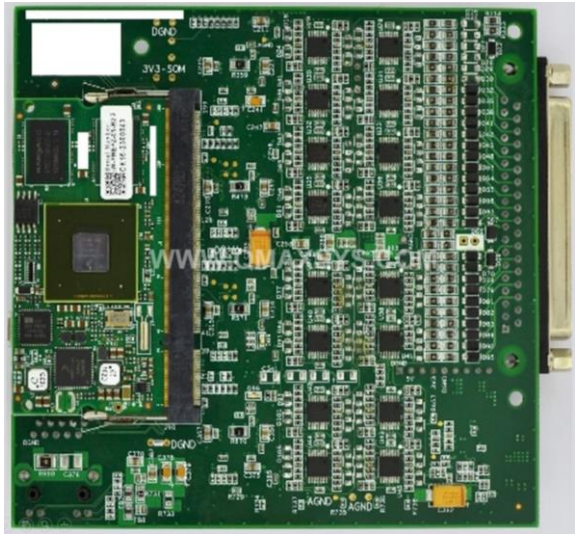
IOT Gateway

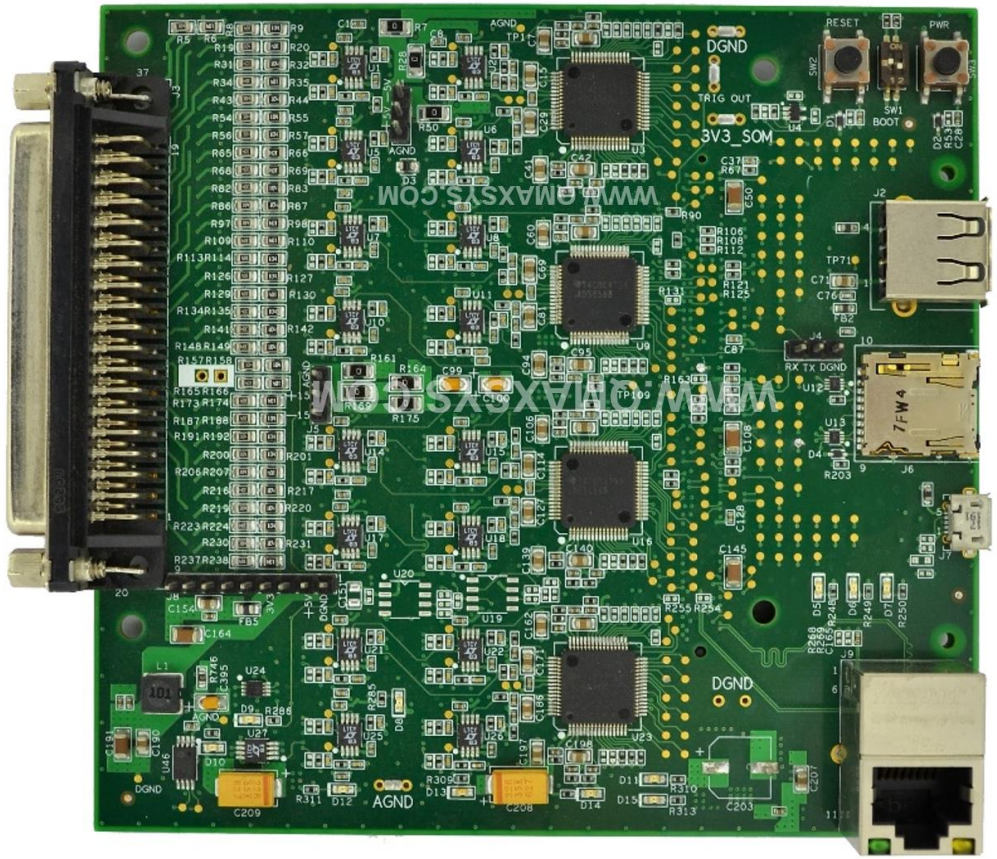
- Qualcomm QCA4531 + QCA4024
- Wi-Fi, BLE 5.0, Zigbee, SIG Mesh
- Firmware and Hardware Development
- Enclosure Design



High Speed Analog Mux

- Hardware / Firmware design and development
- Piezo Sensors / Exciters
- 32 Channel / 16 Bit ADC / 30KSPS, SNR 90 dB
- Mixed Signal / Super low noise
- Linux Driver and Application development
- i.MX6 CPU
- Railways Application





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Security System Controller

- Hardware / Firmware design and Development
- IMx6 CPU / STM32 ARM Cortex-M Controller
- Linux / RTOS
- High Density Digital
- Ethernet / DIO / AIO / PoE
- Mechanical / Enclosure Design / DFM
- FCC Class B certified
- BGA ICs / Local Assembly

Stackable Design

PCB Design Case Studies

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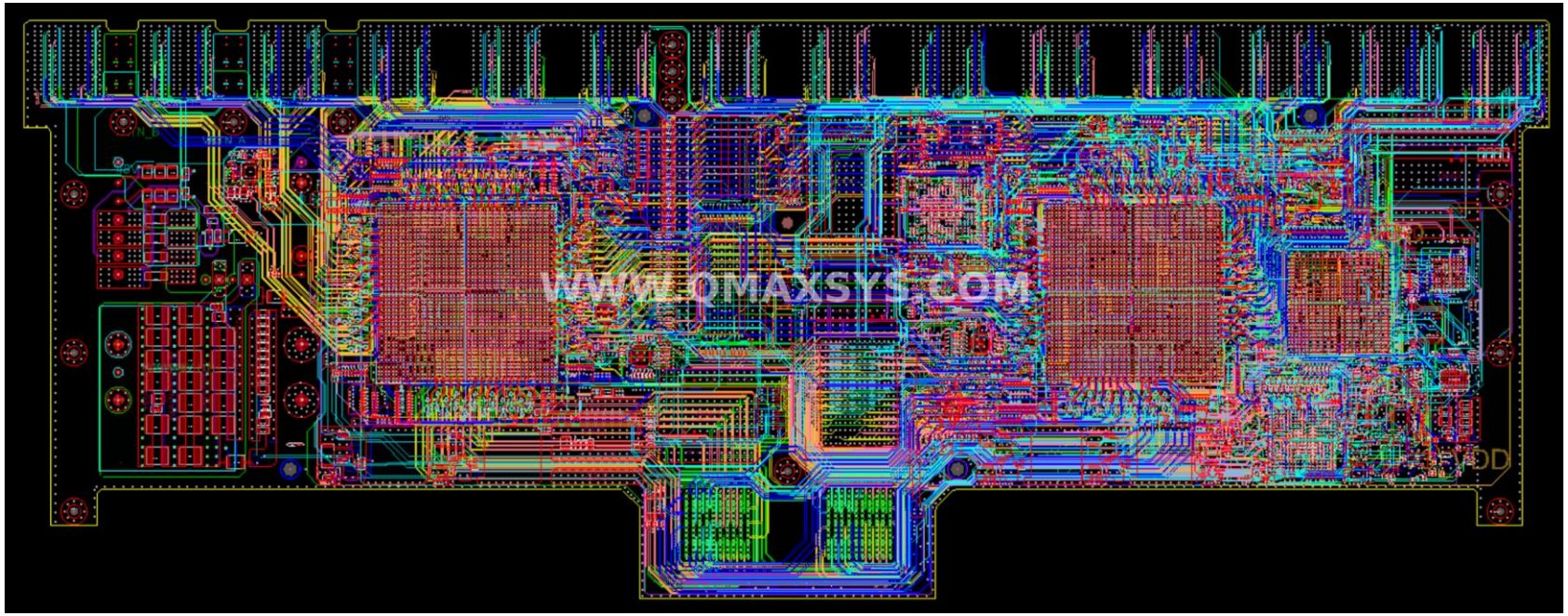
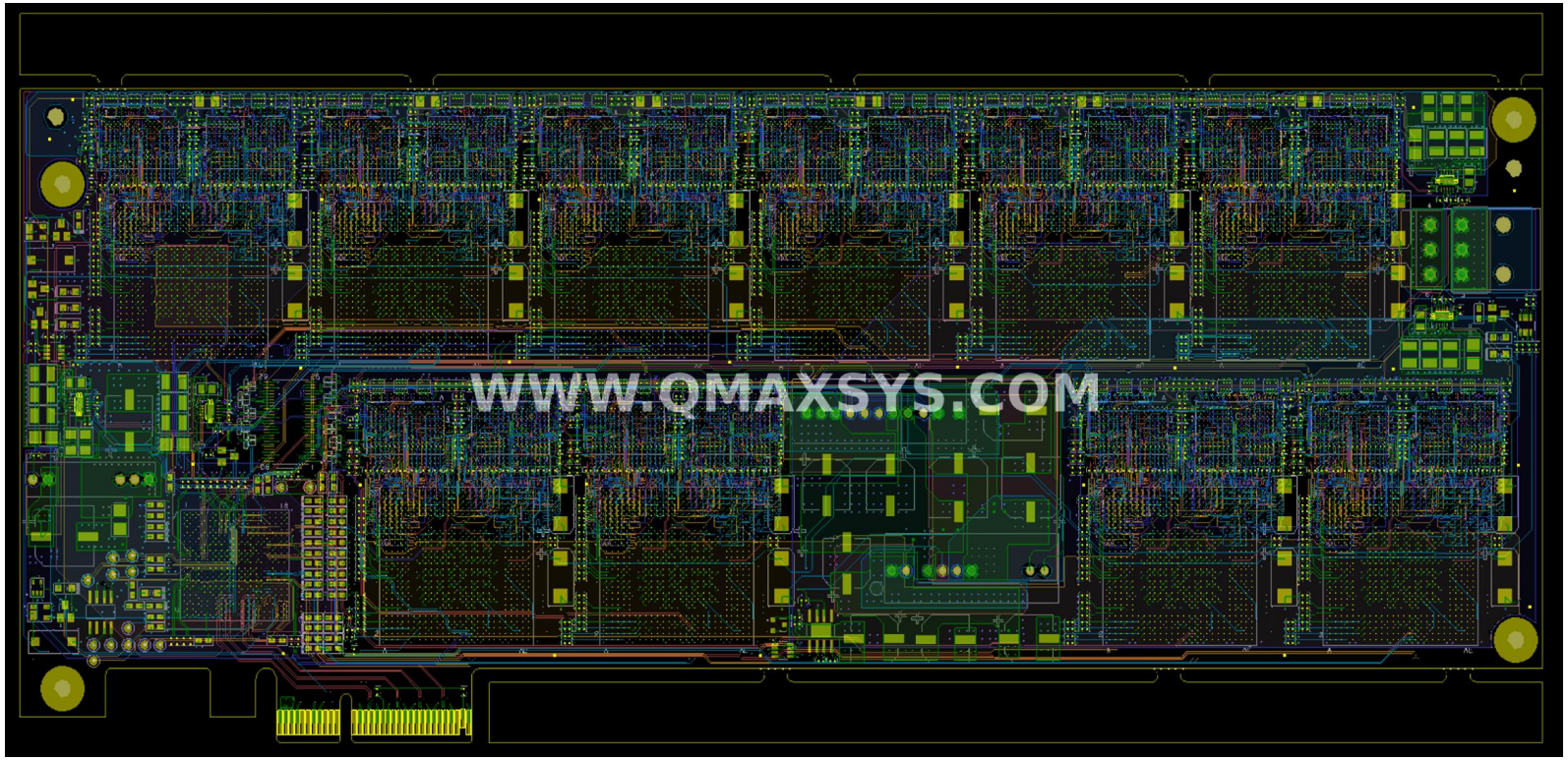
Networking Board

- 100 GBE Switch/Router Board / High speed / DDR3
- 36 layers / 2597 Pins BGAs
- 19705 pins
- Chipset: BCM88650
- High Current
- Ultrahigh density
- Cadence Allegro 16.5



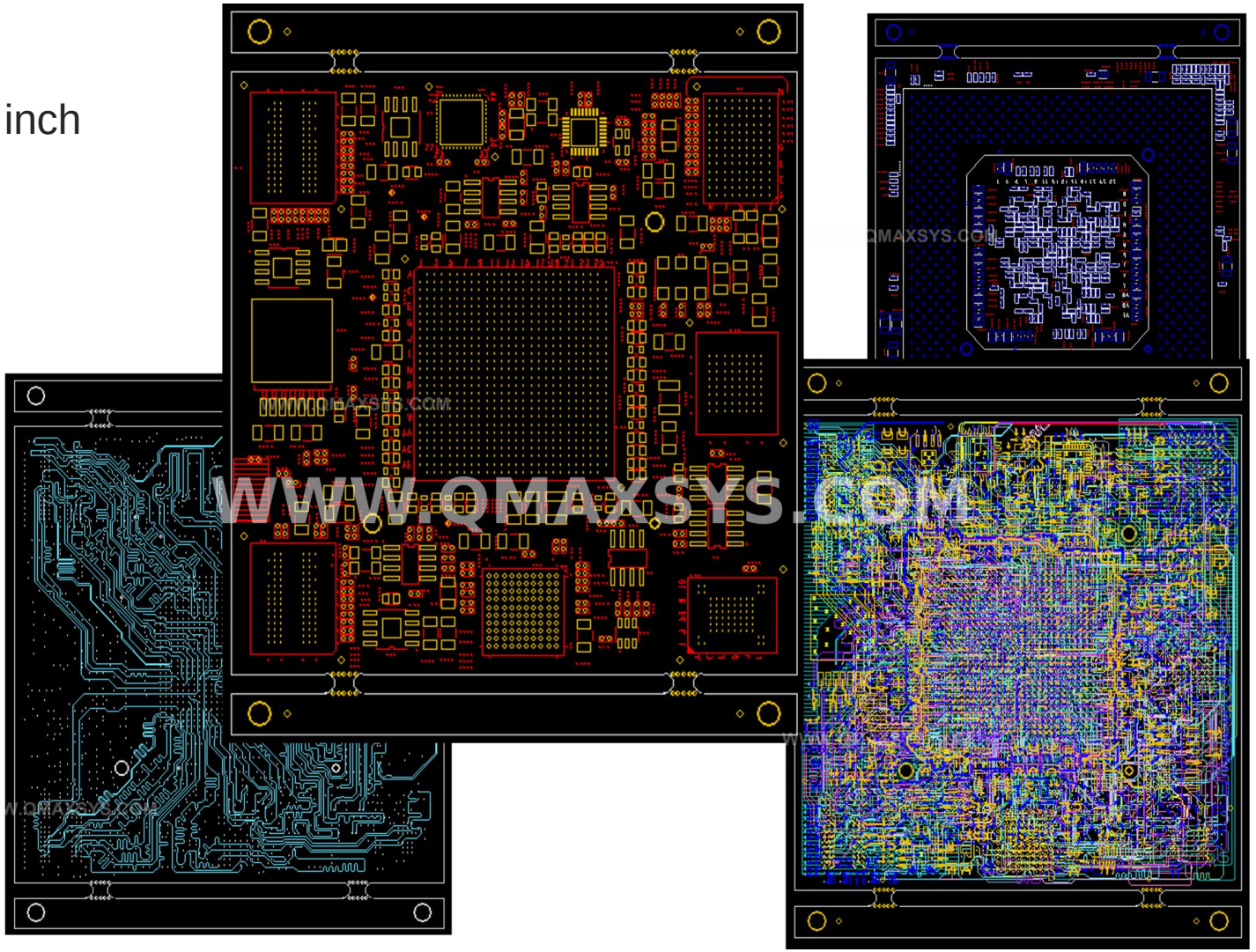
Video Processor PCB

- Video Processing Hardware
- High speed digital / PCIE / DDR3
- Cadence Allegro
- High Current
- Total pin count : 16533



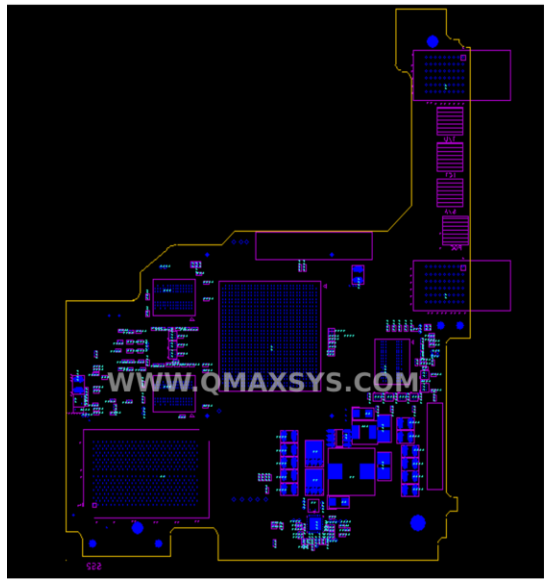
Rugged SBC Board

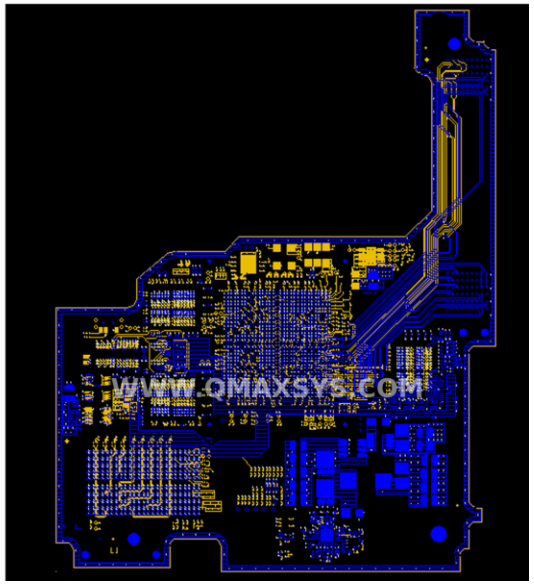
- Ultra high density – 460 Pins per sq. inch
- Military Application
- 20 layer
- High Speed Digital
- Double side components
- HDI – Blind /Buried Vias

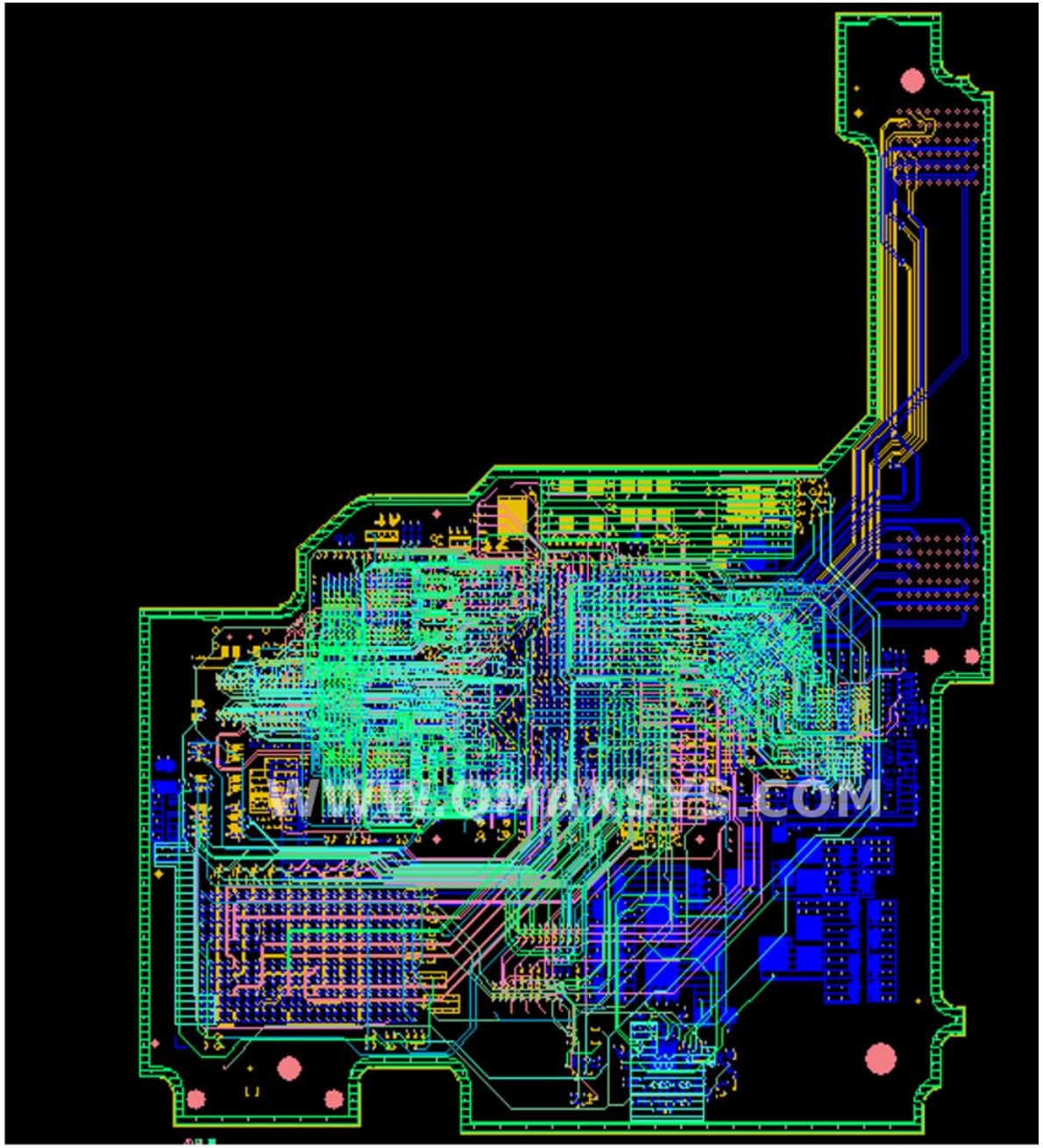


Blade Server NIC

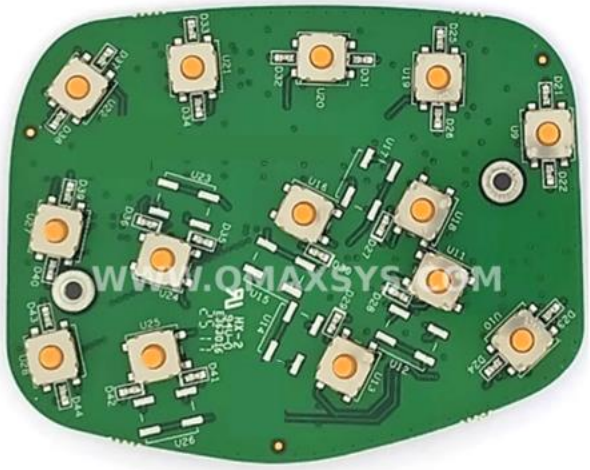
- High density
- Blade server Application
- 14 layers
- High Speed 10 Gbps Ethernet

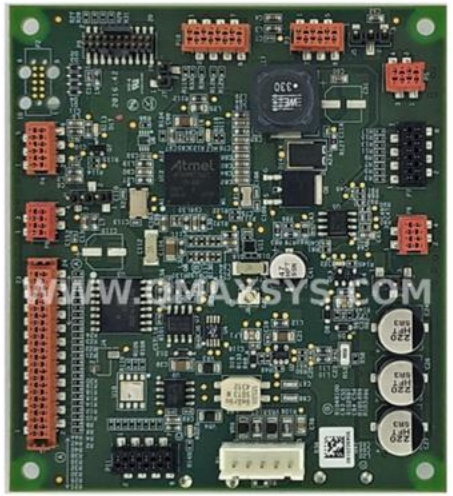


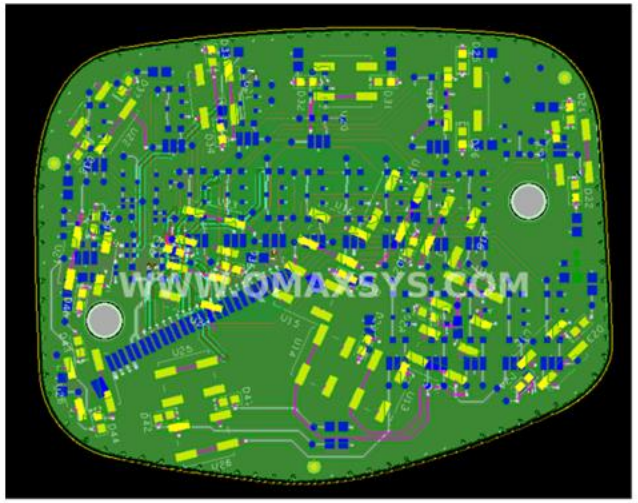


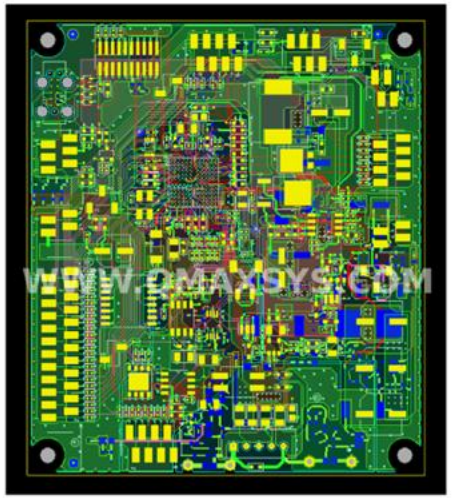


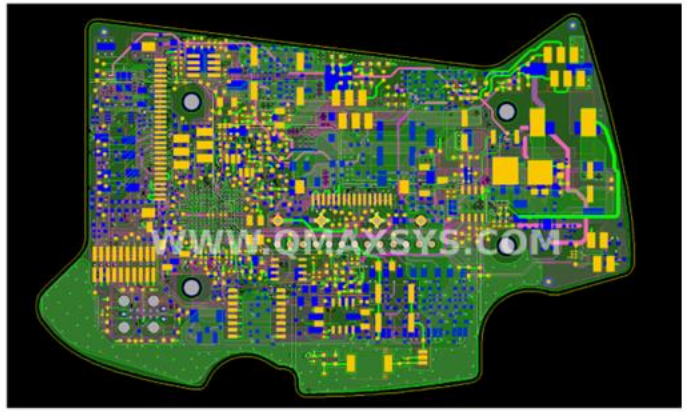
Automotive PCBs











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Industrial Design Case Studies

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Case Studies

Case Studies

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Thanks!

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