

**QMAX** *SYSTEMS*

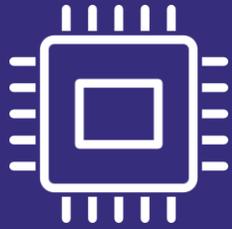
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Electronics Engineering Services

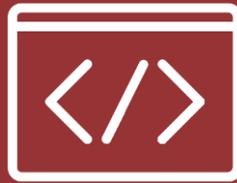
# Qmax Introduction

- An Electronics Engineering and R&D Services company
- Complete End to End Product Development
- R&D Team in Chennai, India, Sales office in the USA
- Multi Domain Expertise – Automotive / Aerospace / Industrial / Medical / Defence
- Incorporated in 2000

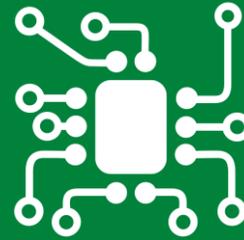
# Services Offered



Hardware  
Design



Embedded  
Firmware



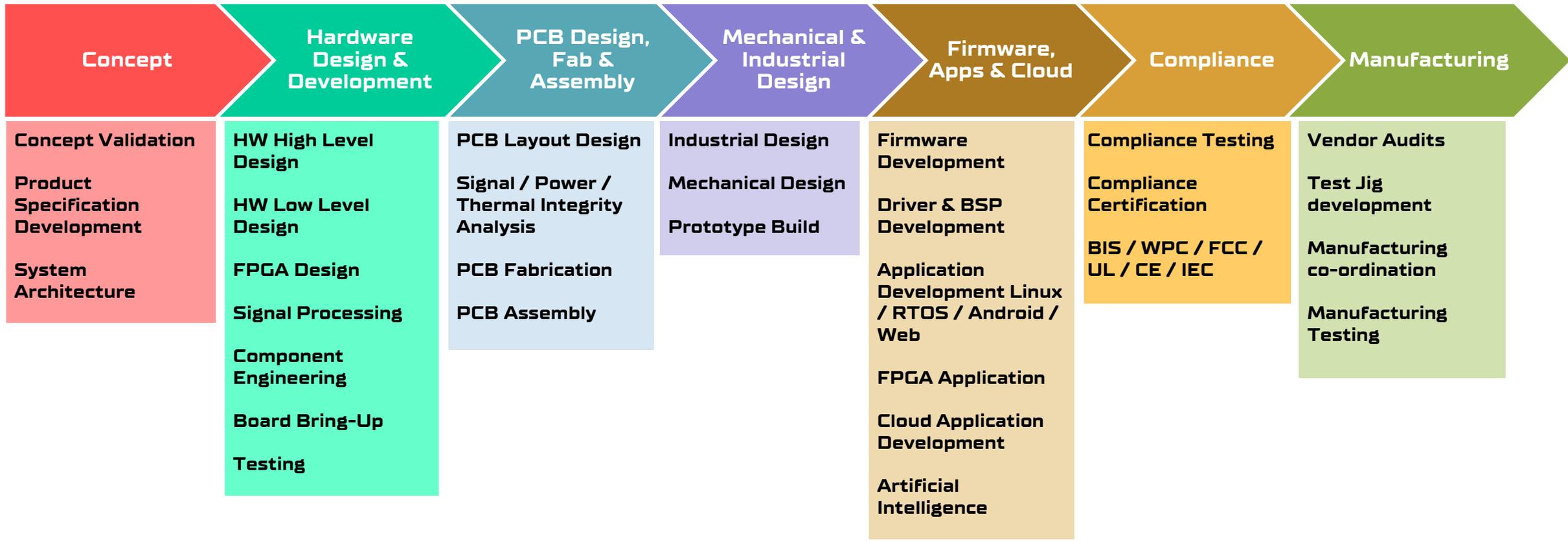
PCB  
Design



Mechanical  
& Industrial  
Design

# Design to Manufacturing

## ← End to End Product Development Services →



# Infrastructure



# Quality Assurance

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  
Re-certification due date: 22-07-2025







Authorised Signatory  
**Veritas System**  
**Quality Certificates Issuing LLC**  
P.O. Box: 122982, Al Karama, Dubai,  
United Arab Emirates.



FSC® C118414

Issue No: 01



LEXUS



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No.310/2A, Rukmani Nagar, 4th Street, Poonamallee, Chennai - 600056, Tamil Nadu, India.

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## ISO 13485:2015

### Medical Devices Quality Management System

The Medical Devices Quality Management System is applicable to:

**Design, Development and Manufacturing of Medical Electronic Products such as Respiratory Monitoring Systems, Smart Phone Dental Cameras and Photo-plethysmograms (PPG)**

IAF/EA-NACE Code: 19-26.12

**Certificate No : LXCI-771286**

Initial Certificate Date : 08-11-2025  
Certificate expiry date: 07-11-2028  
Surveillance 1 due date: 07-11-2026  
Surveillance 2 due date: 07-11-2027



Authorised Signatory  
**Lexus Certifications Intl**




Accredited Board:  
**Accred Services International Board (Europe) Limited (ASIB)**  
128 City Road, London, United Kingdom, EC1V 2NX.

Issue No: 01



# IP Protection and Data Security

- **Non-Disclosure Agreements:** NDAs with Employees, Vendors and Customers .
- **Firewall & VPN:** Secure network with firewall and VPN.
- **Need-to-Know Access:** Sensitive info accessible only to necessary individuals.
- **Security Awareness:** Regular employee training on data security and IP Protection.
- **Access Control:** Only authorized personnel can access premises.

# Hardware Capabilities

- High-Speed Digital Designs
- Analog and Mixed Signal Designs
- Power Electronics
- RF Designs
- FPGA Based Designs

# In-House Test Equipment

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

# Firmware Capabilities

	Embedded	OS	Apps & Cloud
Capabilities	<ul style="list-style-type: none"><li>• Bare Metal C , C_++</li><li>• Boot loader</li><li>• OTA FW Upgrades</li><li>• Protocol Stack</li><li>• Low Power &amp; Memory design</li><li>• Boot time optimisation</li><li>• Rich GUI</li><li>• Micro Python</li></ul>	<ul style="list-style-type: none"><li>• RTOS</li><li>• Embedded Linux</li><li>• Device Drivers</li><li>• Video/Audio/Camera</li><li>• Wi-Fi/BLE/LTE</li><li>• Routers – OPenWRT</li></ul>	<ul style="list-style-type: none"><li>• IOT Platform</li><li>• Edge Processing</li><li>• Web &amp; App Dashboard</li><li>• REST API</li><li>• MEAN Development</li></ul>
Security	<ul style="list-style-type: none"><li>• Secure Boot</li><li>• TPM</li></ul>	<ul style="list-style-type: none"><li>• Secure boot</li><li>• TPM</li><li>• SSL / SSH</li><li>• Encrypted Disc</li></ul>	<ul style="list-style-type: none"><li>• HTTPS</li><li>• Secure MQTT</li><li>• SSL User login</li></ul>

# PCB Design Capabilities

- Schematics Entry
- Library Development : Schematic Symbol / PCB Footprint / 3D Model
- Layout Design
- SI / PI / EMI Analysis / Thermal Analysis
- High Speed Digital / Analog and Mixed Signal / RF Designs
- High Voltage / High Current / Power Electronics
- Solid Expertise in Compliance standards - IPC, UL / FCC / IEC / BIS

# PCB Tools Expertise

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

# Mechanical Design Services

- Plastic Enclosure Design for Electronics
- Machined Aluminium / Sheet Metal / Extruded Enclosures
- Rugged Metal Enclosures for Military Application – MIL-STD-810 / JSS55555
- IP Rated Enclosures – IP65 / IP 67 / IP68
- Full Mechanical Systems Design
- DfX – Manufacturability / Cost / Assembly / Compliance
- Thermal Analysis / Structural Design and Analysis – Vibration / Impact / Drop

# 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 / Vacuum Casting

# FPGA Design Services

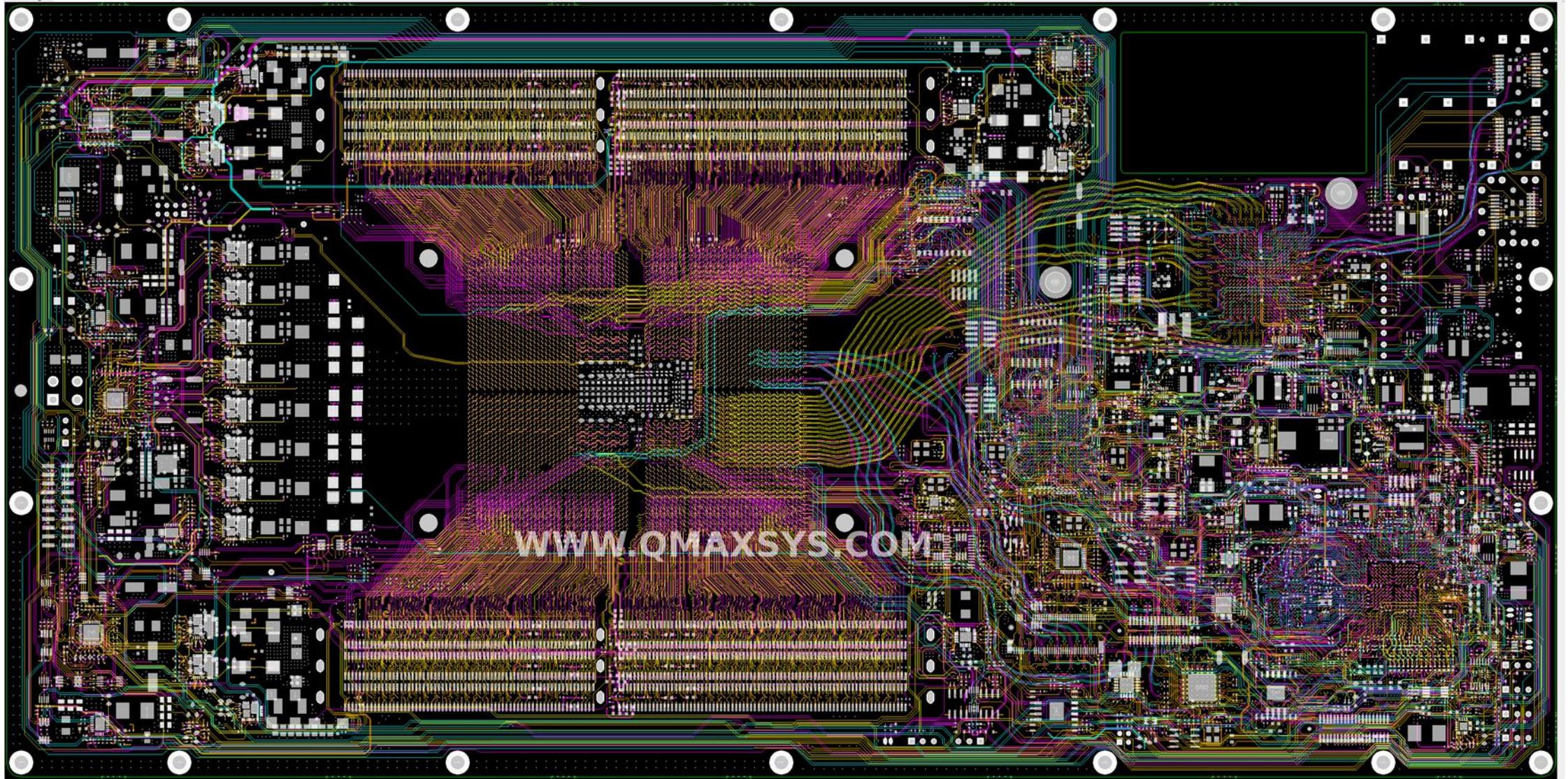
- FPGA Design and Development
- FPGA Prototyping and Testing
- Custom IP Core Development
- FPGA-based System Integration
- Migration and Optimization Services
- Combined Experience of over 30+ years in FPGA Design
- Cross Domain Experience – Telecommunications / Automotive / Aerospace /  
Industrial Automation / Consumer Electronics / Medical Devices

# Product Design Case Studies

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# Blade Server Motherboard

- Ampere Altra Processor / 3 x 25G Ethernet / 16 Layer PCB / High Density / High Speed

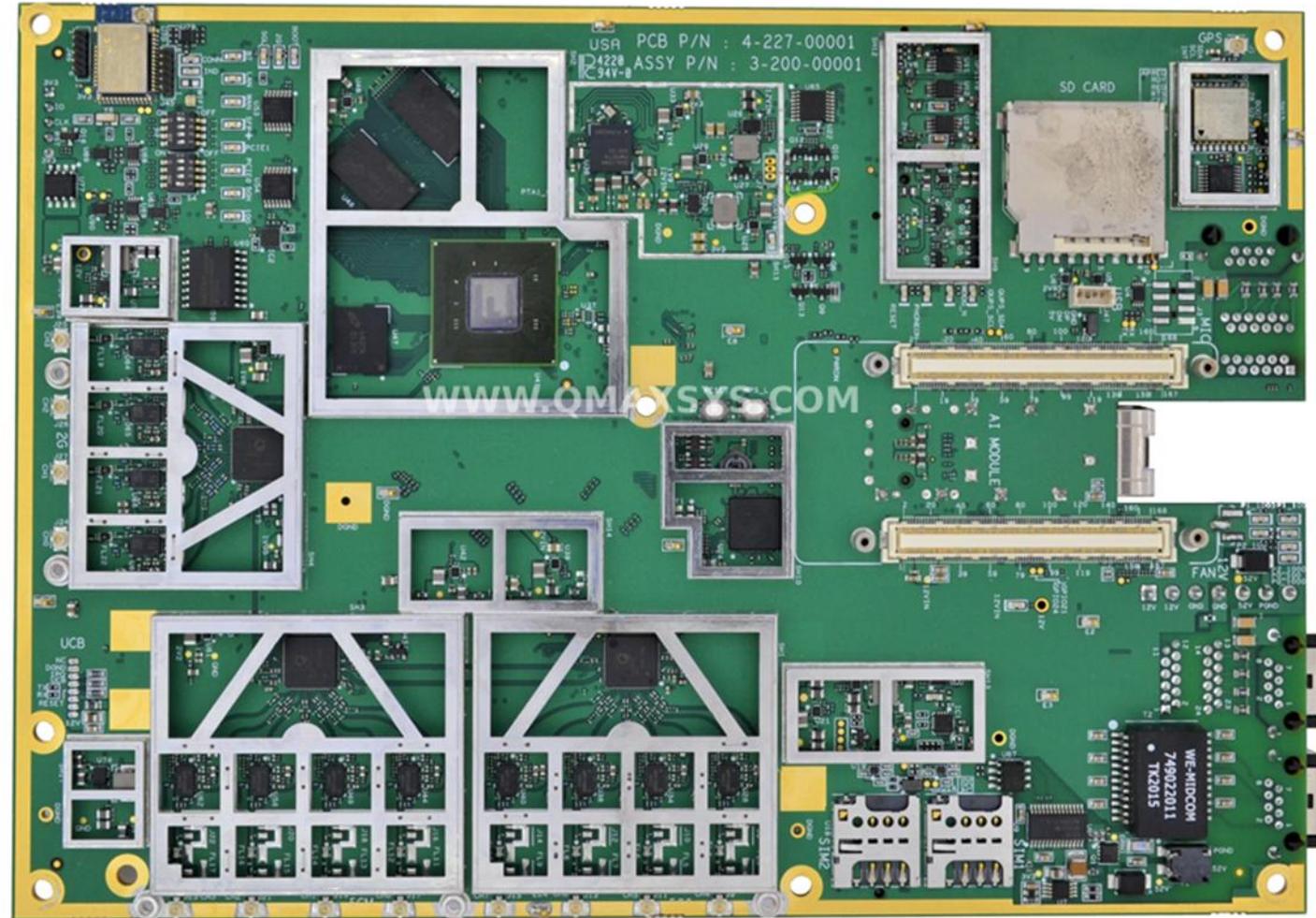


# Blade Server Motherboard



# 11ax Wireless AP - HW Spec

- Qualcomm IPQ8078A SoC
- 8x8 on 5GHz and 4x4 on 2.4GHz
- MU - MIMO / BLE / SFP+ / GigE
- LTE / GPS / POE / USB / PCIe
- Thermal / SI / PI Analysis
- High Density BGA Packages



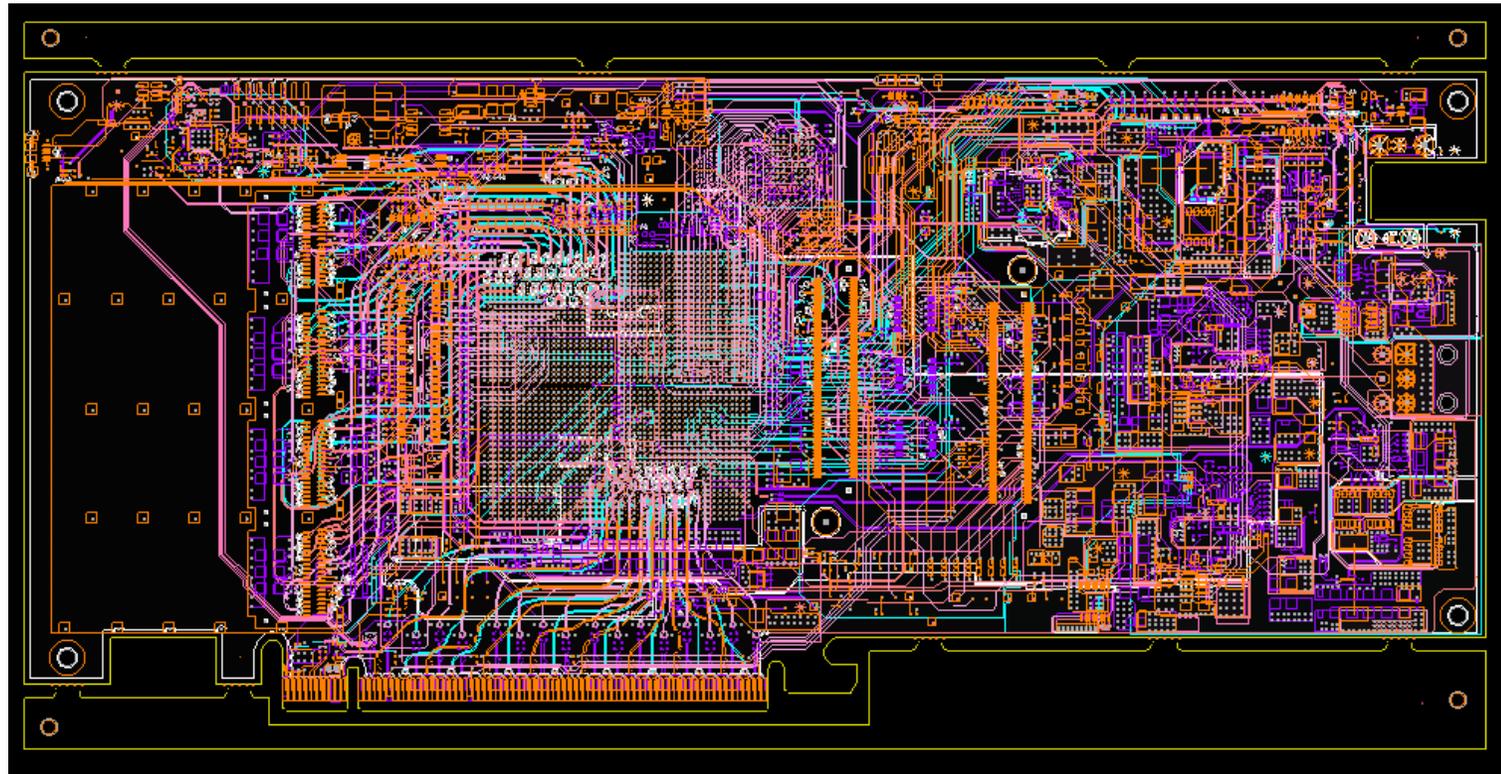
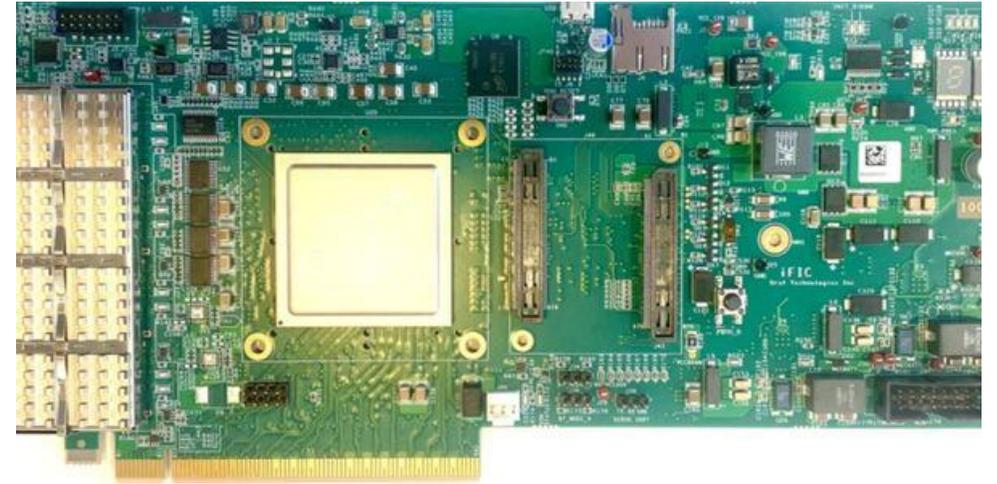
# Aerospace Structural Health Monitoring System

- AI enabled Air Frame Structural Analysis
- Altera A10 FPGA
- 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



# FPGA based 4 x 100G Interface Card

- Virtex® UltraScale+ FPGA
- Networking Application
- PCIe Gen 5 to QSFP+ x 4
- 1mm Pitch 2104 pin BGA
- High Density
- High Speed
- 16 Layer PCB
- HDI PCB



# Rugged RF Power Supply

- Plasma Generation Application
- NXP i.MX6UL CPU
- NXP MRFE6VP61K25HR6 Rugged RF Power LDMOS Transistors
- Frequency: 13.56 MHz
- Rated Power: 1kW
- RJ45 / DB25 Communication Ports
- Customized RF Design
- Full Product Development and Delivery



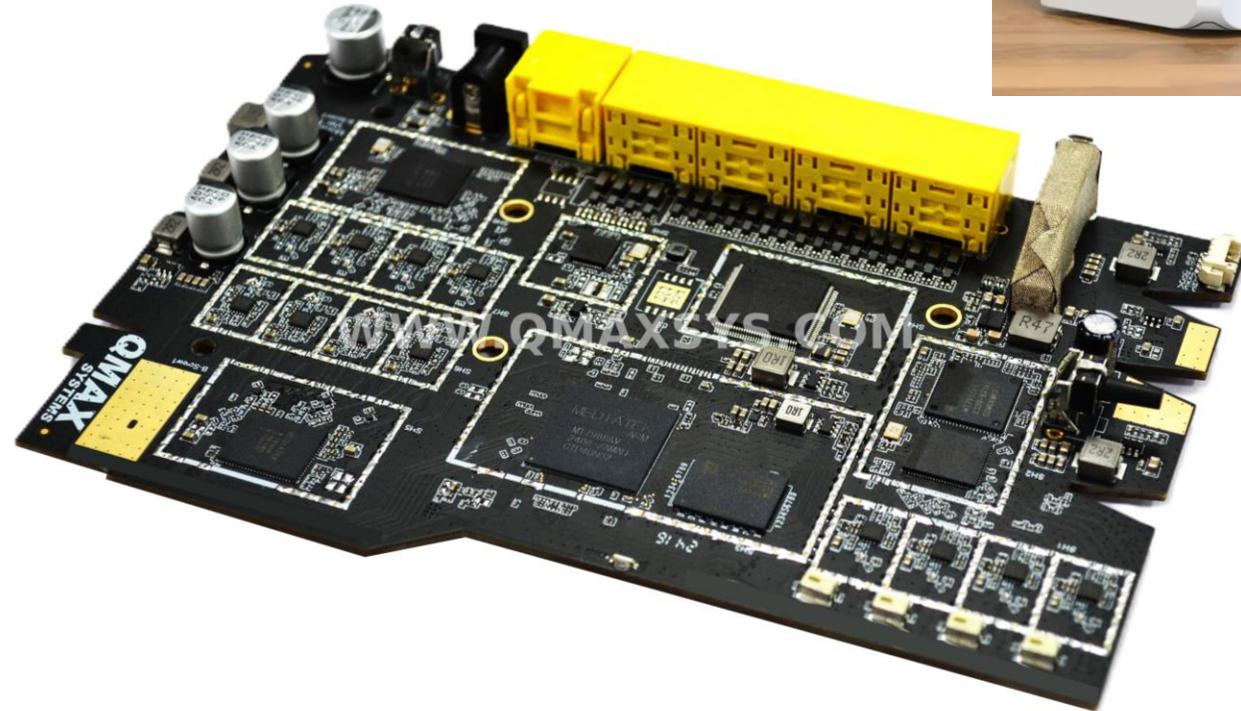
# Connected On-board Diagnostic Device

- 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
- IP 65 Rated ABS Enclosure
- Deployed in GM Garages across USA



# Cybersecurity Device

- MediaTek MT7986AV - Wi-Fi 6/6E Router SoC
- Tri-band Wi-Fi: 4x4 -2.4GHz + 4x4 5GHz + 4x4 5.8GHz
- MU – MIMO / BLE / DDR4 / GigE Ports / USB 3.0
- High Density BGA Packages
- Commercial Application
- Full Product Development
- Thermal / SI / PI Analysis
- RF Tuning / RF Calibration
- Prototyping and Testing
- FCC Certification
- Volume Production



# 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

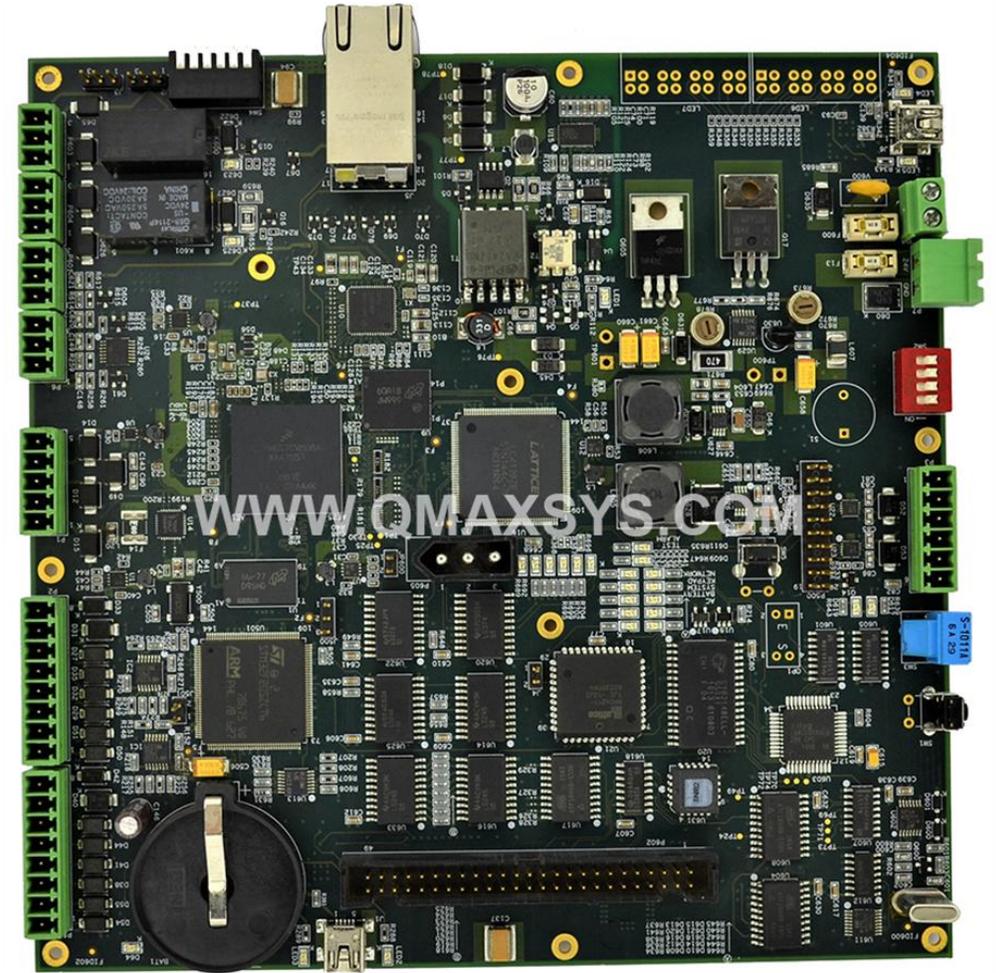


# Security System Controller

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



Stackable Design

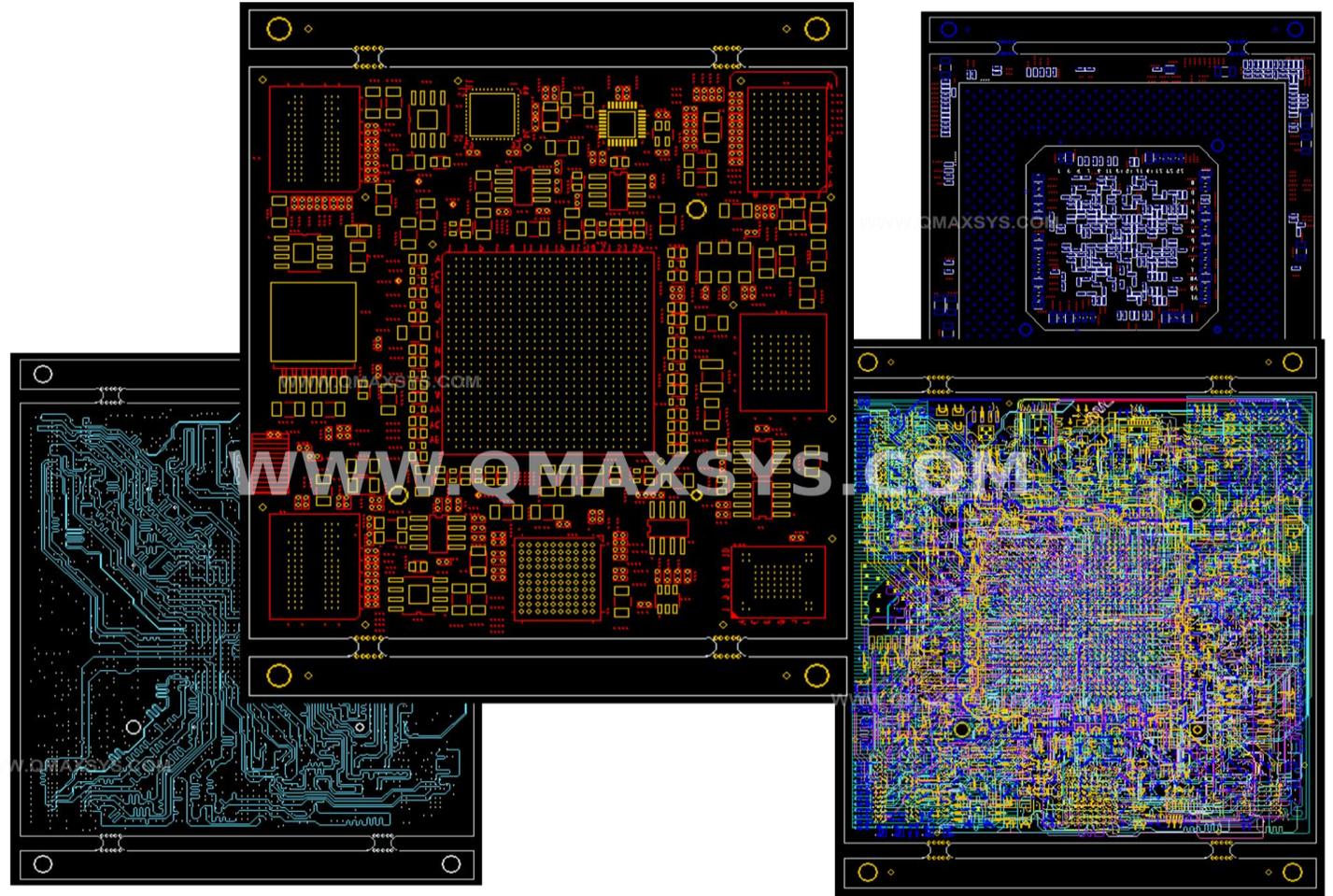


# PCB Design Case Studies

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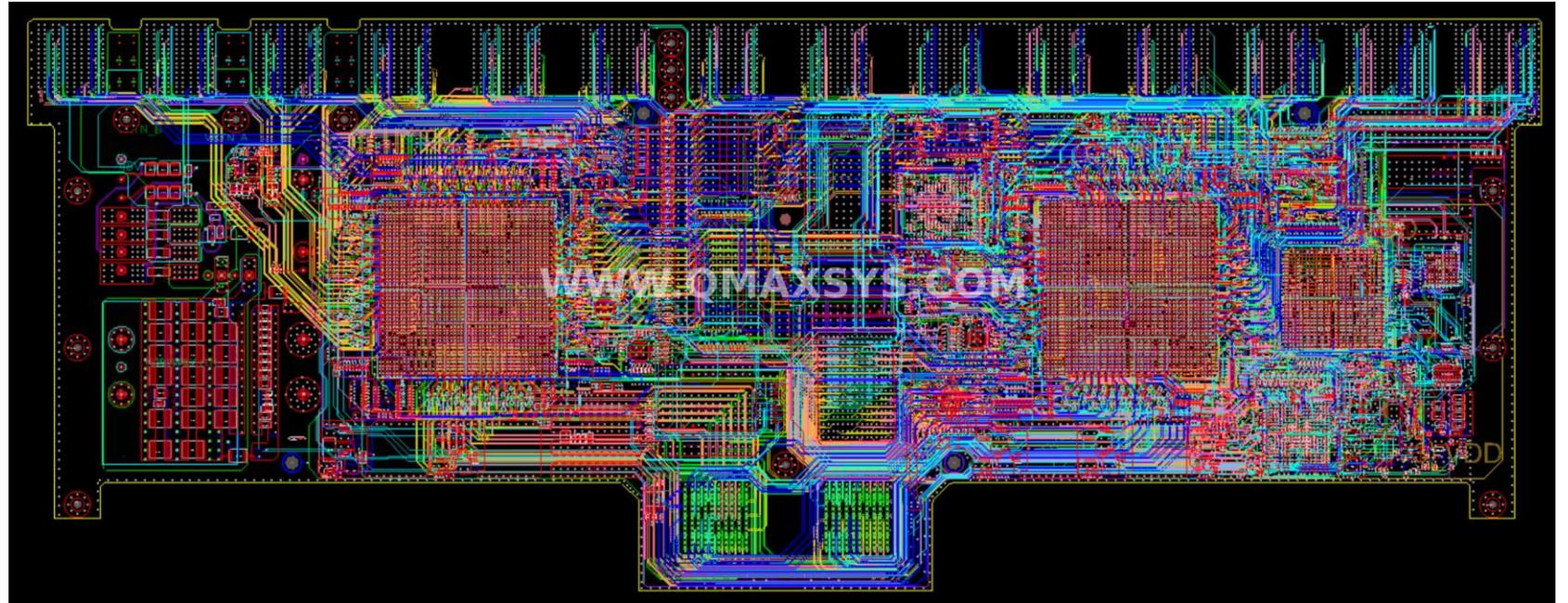
# Rugged SBC Board

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



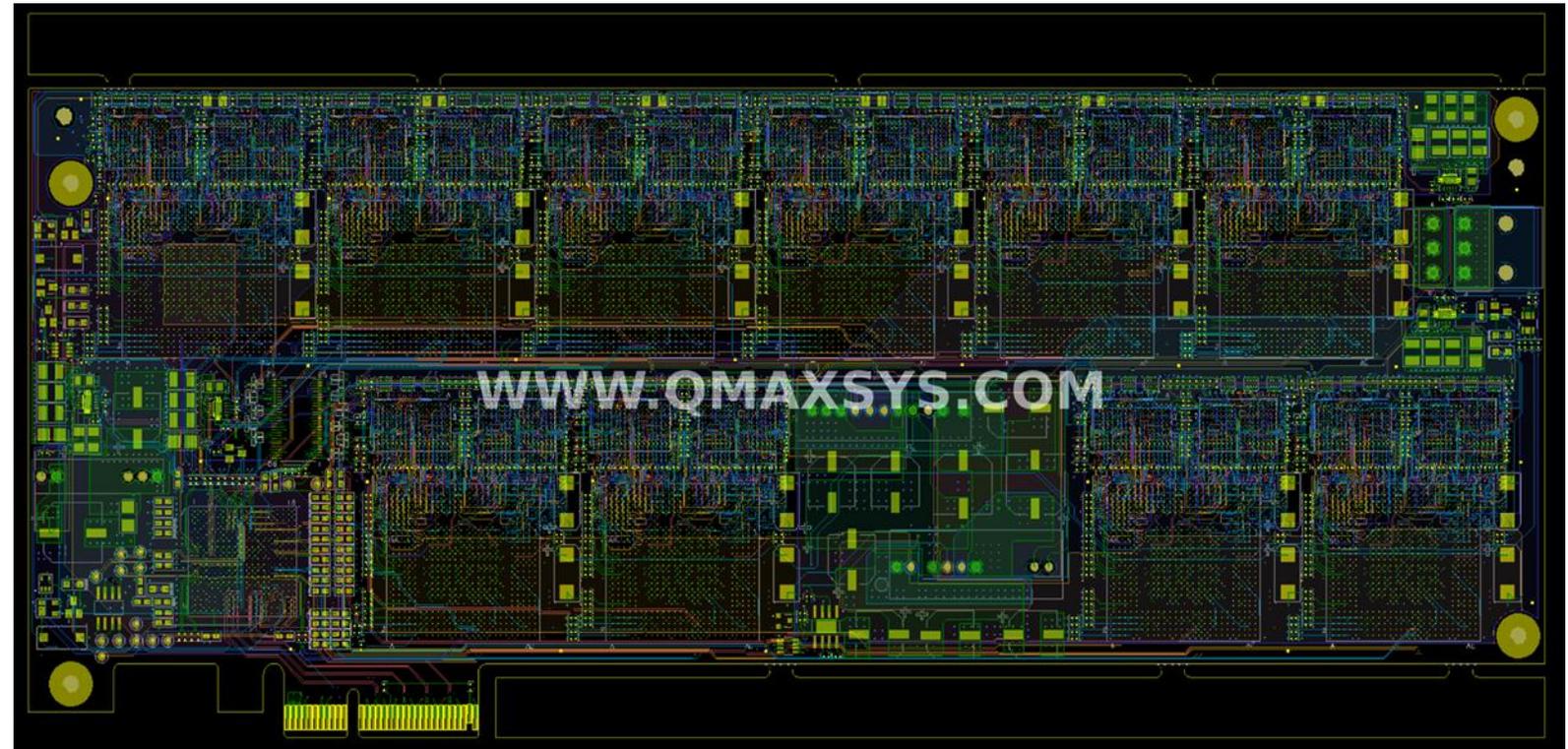
# Networking Board

- 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

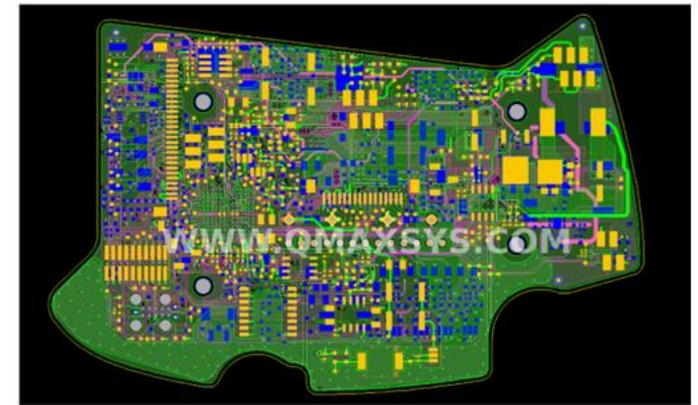
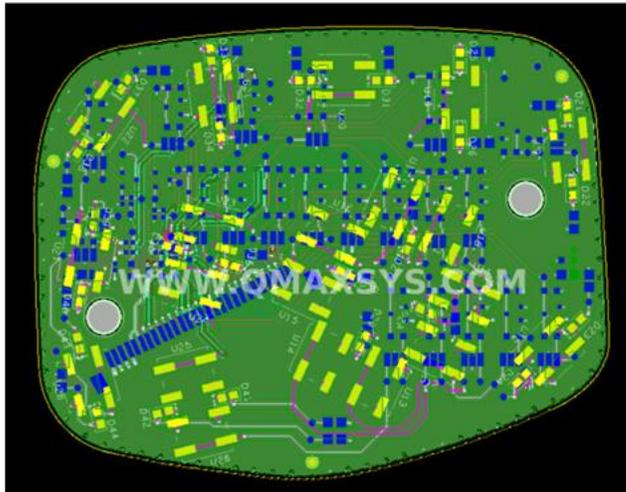
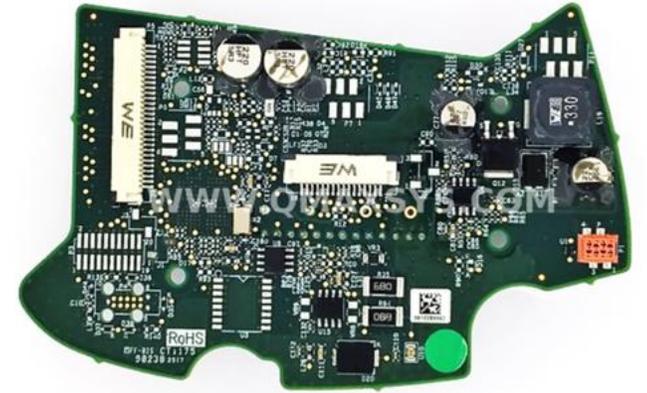
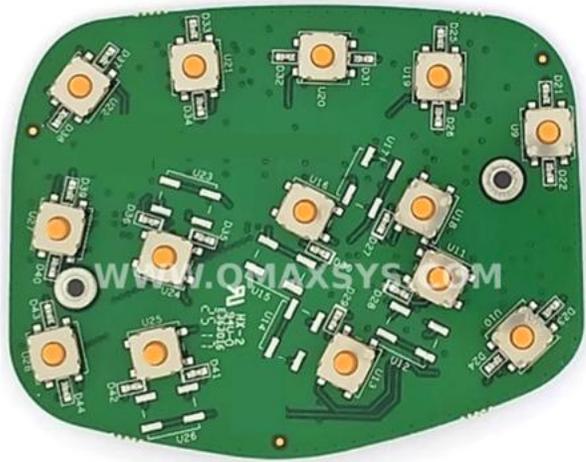


# Video Processor PCB

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



# Automotive PCBs



# Industrial Design Case Studies

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# Case Studies



# Case Studies



# Thanks.!

## **Saravana**

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