

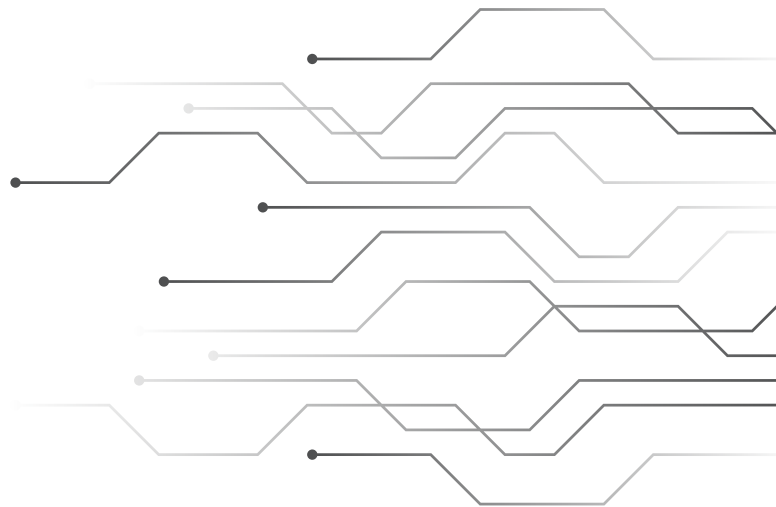


Embedded Compute Solutions

LANTRONIX[®]

Qualcomm

LANTRONIX®





Production-ready System on Module

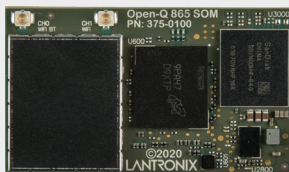
Open-Q™ 516RB SOM (System on Module)

NEW



SOM based on the Qualcomm® QRB5165 SoC
 Kryo 585 Octa-core CPU, Adreno 650 GPU & Hexagon 698 DSP
 Dimensions 29mm x 50mm
 Ubuntu 18.04 Linux with support for Docker and ROS2

Open-Q™ 865XR SOM (System on Module)



SOM based on the Qualcomm® SXR2130P SoC
 Kryo™ 585 Octa-core CPU, Adreno™ 650 GPU & Hexagon™ 698 DSP
 Dimensions 29mm x 50mm
 Android™ 10

Open-Q™ 845 μSOM (Micro System on Module)



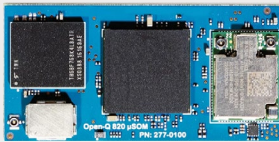
μSOM based on the Qualcomm® SDA845 processor
 Octa-core 64-bit Kryo™ CPU, Adreno™ 630 GPU & Hexagon™ 685 DSP
 Dimensions 25mm x 50mm
 Android™ 9 Pie, Linux®

Open-Q™ 820Pro μSOM (Micro System on Module)



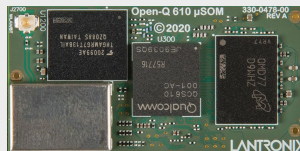
μSOM based on long-life, higher-speed, Qualcomm® 820E (APQ8096SG) SoC
Quad-core 64-bit Kryo™ CPU @ 2.342 GHz, Adreno™ 530 GPU @ 652.8 MHz,
Hexagon™ 680 DSP with HVX
Dimensions 25mm x 50mm
Android™ 9 Pie, Linux®

Open-Q™ 820 μSOM (Micro System on Module)



μSOM (Micro System on Module) based on the Qualcomm® 820 processor
Quad-core 64-bit Kryo™ CPU, Adreno™ 530 GPU & Hexagon™ 680 DSP with HVX
Dimensions 25mm x 50mm
Android™ 7 Nougat, Android™ 8 Oreo™, Linux®, Android™ 9 Pie

Open-Q™ 610 μSOM (Micro System on Module)



SOM (System on Module) based on the Qualcomm® QCS610 SoC
Kryo™ 460 Octa-core CPU, Adreno™ 612 GPU, Hexagon™ DSP
Dimensions 50mm x 25mm
Yocto Linux connected camera SDK

Open-Q™ 660 μSOM (Micro System on Module)



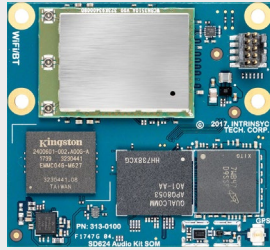
μSOM (Micro System on Module) based on the Qualcomm® SDA660 processor
Octa-core 64-bit Kryo™ 260 CPU, Adreno™ 512 GPU & Hexagon™ 680 DSP
Dimensions 25mm x 50mm
Android™ 9 Pie

Open-Q™ 626 μSOM (Micro System on Module)



μSOM (Micro System on Module) based on the Qualcomm® 626 processor
Octa-Core 64-bit ARM® Cortex® A53, Adreno™ 506 GPU, Hexagon™ 546 DSP
Dimensions 25mm x 50mm
Android™ 9 Pie, Android™ 10, Linux®

Open-Q™ 624A SOM (System on Module)



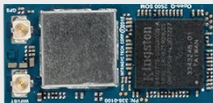
SOM (System on Module) based on the Qualcomm® 624 processor
Octa-Core 64-bit ARM® Cortex® A53, Adreno™ 506 GPU, Hexagon™ 546 DSP
Dimensions 46.5mm x 50mm
Android™ 8 Oreo™

Open-Q™ 410 SOM (System on Module)



SOM (System on Module) based on the Qualcomm® 410 processor
Quad-core 64-bit ARM® Cortex®, Adreno™ 306 GPU & Hexagon™ v5 DSP
Dimensions 26.5mm x 44mm
Android™ 7 Nougat, Android™ 5 Lollipop, Windows 10 IoT Core, Linux®

Open-Q™ 2500 SOM (System on Module)



SOM (System on Module) based on the Qualcomm® Snapdragon™ Wear 2500 processor
Quad-Core ARM Cortex A7 (32-bit) at 1.094GHz
Dimensions 15mm x 31.5mm
Android™ 8 Oreo™ for Wearables

Qualcomm



LANTRONIX®

Development Kits

Open-Q™ 865 Development Kit (SOM sold separately)

NEW



Supporting the Open-Q 865 Family of SOMs
865XR SOM, 5165RB SOM
Mini-ITX Form-factor carrier board for eval and development
Numerous I/O and connectivity options
OS SW depends on specific SOM purchased

Open-Q™ 865XR SOM Development Kit



Powered by the Open-Q™ 865XR SOM (System on Module)
Octa-core Kryo™ 585 CPU, Adreno™ 650 GPU & Hexagon™ DSP
Carrier board Mini-ITX 170mm x 170mm
Android™ 10

Open-Q™ 845 μSOM Development Kit



Powered by the Open-Q™ 845 μSOM (Micro System on Module)
Octa-core 64-bit Kryo™ CPU, Adreno™ 630 GPU & Hexagon™ 685 DSP
Carrier board Mini-ITX 170mm x 170mm
Android™ 9 Pie, Linux

Open-Q™ 820Pro μSOM Development Kit



Powered by the Open-Q™ 820Pro μSOM (Micro System on Module)
Long-life, higher-speed, Qualcomm® Snapdragon™ 820E (APQ8096SG) SoC
Quad-core 64-bit Kryo™ CPU @ 2.342 GHz, Adreno™ 530 GPU @ 652.8 MHz,
Hexagon™ 680 DSP with HVX
Carrier board 170mm X 170mm, SOM 25mm x 50mm
Android™ 9 Pie, Debian Linux®

Open-Q™ 820 μSOM Development Kit



Powered by the Open-Q™ 820 μSOM (Micro System on Module)
Quad-core 64-bit Kryo™ CPU, Adreno™ 530 GPU & Hexagon™ 680 DSP with HVX
Carrier board 170mm X 170mm, SOM 25mm x 50mm
Android™ 7 Nougat, Android™ 8 Oreo™, Linux®, Android™ 9 Pie

Open-Q™ 660 μSOM Development Kit



Powered by the Open-Q™ 660 μSOM (Micro System on Module)
Octa-core 64-bit Kryo™ 260 CPU, Adreno™ 512 GPU & Hexagon™ 680 DSP
Carrier board Mini-ITX 170mm x 170mm
Android™ 9 Pie

Open-Q™ 610 μSOM Development Kit



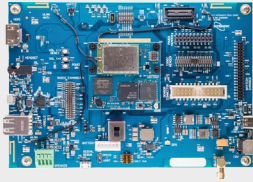
Powered by the Open-Q™ 610 μSOM (Micro System on Module)
Kryo 460 Octa-core CPU, Adreno 612 GPU, Hexagon DSP
Carrier board Mini-ITX 170mm x 170mm
Yocto Linux

Open-Q™ 626 μSOM Development Kit



Powered by the Open-Q™ 626 μSOM (Micro System on Module)
Octa-Core 64-bit ARM® Cortex™ A53 2.2GHz CPU (APQ 8053Pro)
Carrier board 170mm x 170mm
Android™ 9 Pie, Android™ 10, Linux®

Open-Q™ 624A Development Kit



Powered by the Open-Q™ 624A SOM (System on Module)

Octa-Core 64-bit ARM® Cortex™ A53 1.8GHz

Carrier board 170mm x 115mm

Android™ 8 Oreo™

Open-Q™ 410 Development Kit



Powered by the Open-Q™ 410 SOM (System on Module)

Quad-core 64-bit ARM® Cortex® A53, Adreno™ 306 GPU, Hexagon™ v5 DSP

Carrier board 130mm X 130mm, SOM 44mm x 26.5mm

Android™ 7 Nougat, Android™ 5 Lollipop, Windows™ 10 IoT Core, Linux®

Open-Q™ 2500 Development Kit



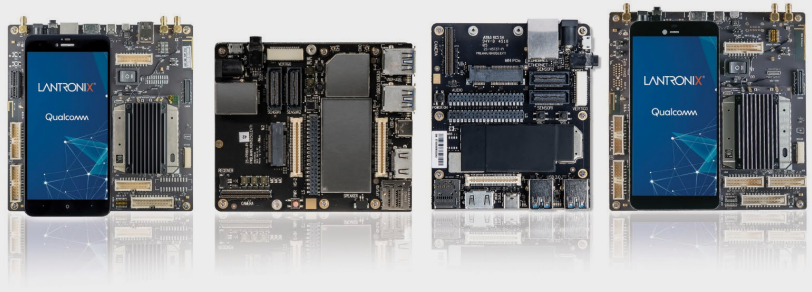
Powered by the Open-Q™ 2500 SOM (System on Module)

Quad-Core ARM Cortex A7 (32-bit) at 1.094GHz

Carrier board 170mm x 170mm, SOM 15mm x 31.5mm

Android™ 8 for Wearables

Qualcomm® Snapdragon™ Mobile Hardware Development Kits



Snapdragon™ 8 Gen 1 Mobile Hardware Development Kit

New



Powered by the Qualcomm® Snapdragon™ SM4350P SoC
Numerous I/O and connectivity options
Main Board: 100 mm x 85 mm
Android

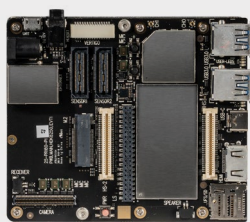
Snapdragon™ 888 Mobile Hardware Development Kit



Powered by the Qualcomm® Snapdragon™ SM8350 SoC
Octa-core 64-bit Kryo™ 680 CPU, Adreno 660 GPU, Hexagon™ 780 AI Processor
Main Board: 85mm x 100mm
Android 11

Snapdragon™ 865 Mobile Hardware Development Kit

Last Time Buy



Powered by the Qualcomm® Snapdragon™ SM8250 Processor
Octa-core 64-bit Kryo™ 585 CPU, Adreno™ 650 GPU & Hexagon™ 698 DSP
Main Board: 85 mm x 100 mm
Android™ 10

Case Studies

FLOCK SAFETY: SUPPORT CITIZENS AND LAW ENFORCEMENT IN FIGHTING NON-VIOLENT CRIME IN THEIR COMMUNITIES

Solution:

The challenge was to build technology that would capture the license plate evidence needed to solve non-violent neighborhood crime. Utilizing Lantronix's Open-Q™ 624A SOM, its Development Kit and a custom carrier board designed by Lantronix's engineers, the Flock Safety team was able to quickly and cost-effectively build a purpose-built core platform for its safety system.



WHISPER: MEDICAL, HEALTHCARE & AI EMPOWERING WHISPER TO REIMAGINE HEARING

Solution:

Like a traditional hearing aid, the Whisper Hearing System has earpieces with tiny microphones. What makes it unique is the pocket-sized power and intelligence of the Whisper Brain, which is powered by the Lantronix Open-Q™ 820 μ SOM.



MOXIE : CREATE A SECURE AI-BASED ROBOT FOR CHILDREN

Solution:

Embodied's designers chose the Lantronix Engineering Services team to support the development of a secure operating system with advanced privacy, security and camera technologies to ensure that Moxie would be safe for use by children.

In addition, the Lantronix team helped deliver the most appropriate options for camera exposure control to ensure image quality in challenging imaging environments. Implementing advanced camera technology enables Moxie to interact while adaptively adjusting to scene changes, such as dim lighting conditions.



YOUBIQUO : AUGMENTED REALITY SOLUTIONS FOR ENTERPRISES

Solution:

Youbiquo designs wearable electronics and IoT devices with a focus on industry-specific applications. By taking advantage of technology from Lantronix, including the Lantronix Open-Q™ 626 Micro System on Module (μ SOM), which is based on the Qualcomm® APQ8053-Pro System on Chip (SoC) from Qualcomm® Technologies Inc. (QTI), Youbiquo's design team created the Talens Holo Augmented Reality Smart Glasses, giving maintenance and construction technicians a powerful tool to improve the speed and quality of their work.



Case Studies

MISTY ROBOTICS: AN ADVANCED, PURPOSE-BUILT PLATFORM ROBOT

Solution:

Misty Robotics, with the support of Lantronix, created Misty II, an open platform robot for development and education. To give Misty the performance necessary for meaningful tasks and customization, Lantronix helped incorporate a variety of hardware and software, including two System on Modules (SOMs) equipped with Qualcomm SoCs and a variety of cutting-edge software. • Results: As a powerful robot designed for programmability and customization, Misty's full potential has yet to be seen. She is already being used for a variety of applications ranging from education to eldercare, with more exciting and innovative applications to follow.



GUARDHAT: CONNECTING INDUSTRIAL OPERATORS, WORKERS AND ASSETS IN REAL TIME

Solution:

They incorporated sensors, a camera and microphones into the hardhat and tied them together with the on-device processing power of Lantronix's Open-Q™ 626 μ SOM (micro system on module), based on the Qualcomm® APQ8053-Pro SoC. The 626 μ SOM accommodates event processing rules that warn the worker in real time about imminent danger. It also allows audio/video calling.



E-SIGHT: BEATING VISUAL IMPAIRMENT WITH TECHNOLOGY

Solution:

eSight: Helping people see despite central vision loss. eSight 3 glasses are built on the Qualcomm® APQ8084 application processor, designed to put the performance of a smartphone into low-power IoT applications like virtual reality and smart glasses. The APQ8084 takes the feed from the camera and runs image-processing algorithms that optimize the stream for the independent screens.

While a processor that powerful might seem an odd fit for assistive eyewear, it's typical of the innovative use cases in which technology from Qualcomm Technologies, Inc. has been popping up. eSight Corp worked with Lantronix, one of our authorized design centers, to integrate the processor on a custom, single-board computer (SBC). Lantronix then used the software running on the SBC for the performance and power efficiency they needed.



Enabling the Internet of Things

Lantronix is a global provider of secure data access and management solutions for Internet of Things (IoT) and information technology (IT) assets.



Transportation



Smart Cities and Utilities



Drones



Connected Healthcare



Robotics



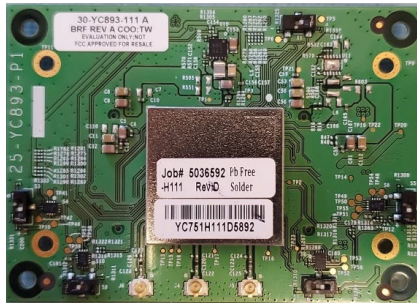
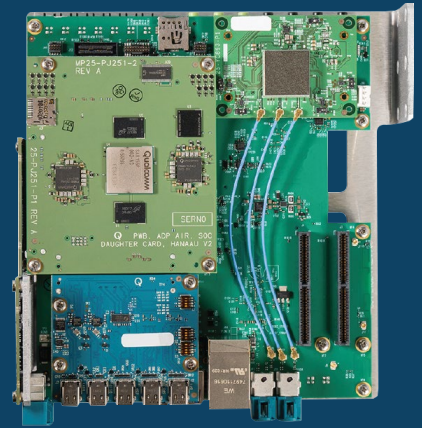
Security & Video Surveillance

Qualcomm Automotive Development Platforms

Snapdragon SA8195P/SA8155P/SA6155P Automotive Development Platforms

The third-generation Snapdragon™ Automotive Development Platforms (ADP) based on Qualcomm® Snapdragon™ Automotive chipsets provide OEMs and ecosystem partners with access to QTI's high-performance automotive infotainment, advanced driver assist platform for developing, testing, optimizing and showcasing next-generation in-vehicle infotainment solutions.

The platform is available in three versions with varying performance levels and interfaces – the top-tier SA8195P, the standard SA8155P, and the mid-tier SA6155P. All three platforms feature the Qualcomm Kryo octa-core CPU, Adreno GPU, Hexagon DSP, Spectra ISP, and Adreno VPU, along with rich connectivity through Wi-Fi 802.11ax and Bluetooth 5.1. These platforms provide optimized application development environments for rapid deployment of high performance and power efficient connected automotive infotainment offerings.



ADP Wi-Fi/Bluetooth Module

Optional lower cost Wi-Fi/BT module compatible with the SA8195P and SA8155P Automotive Development Platforms (standard module on SA6155P ADP). Contains QCA6574A Wi-Fi 5 (11ac) + Bluetooth v5.0 Single MAC 2x2 MIMO connectivity solution.

ADP AIR Enclosure

The ADP AIR Enclosure is compatible with the Snapdragon SA8155, SA6155, and SA8195 Automotive Development Platforms. Includes a built-in fan and is ideal for PoC and field testing with these platforms.

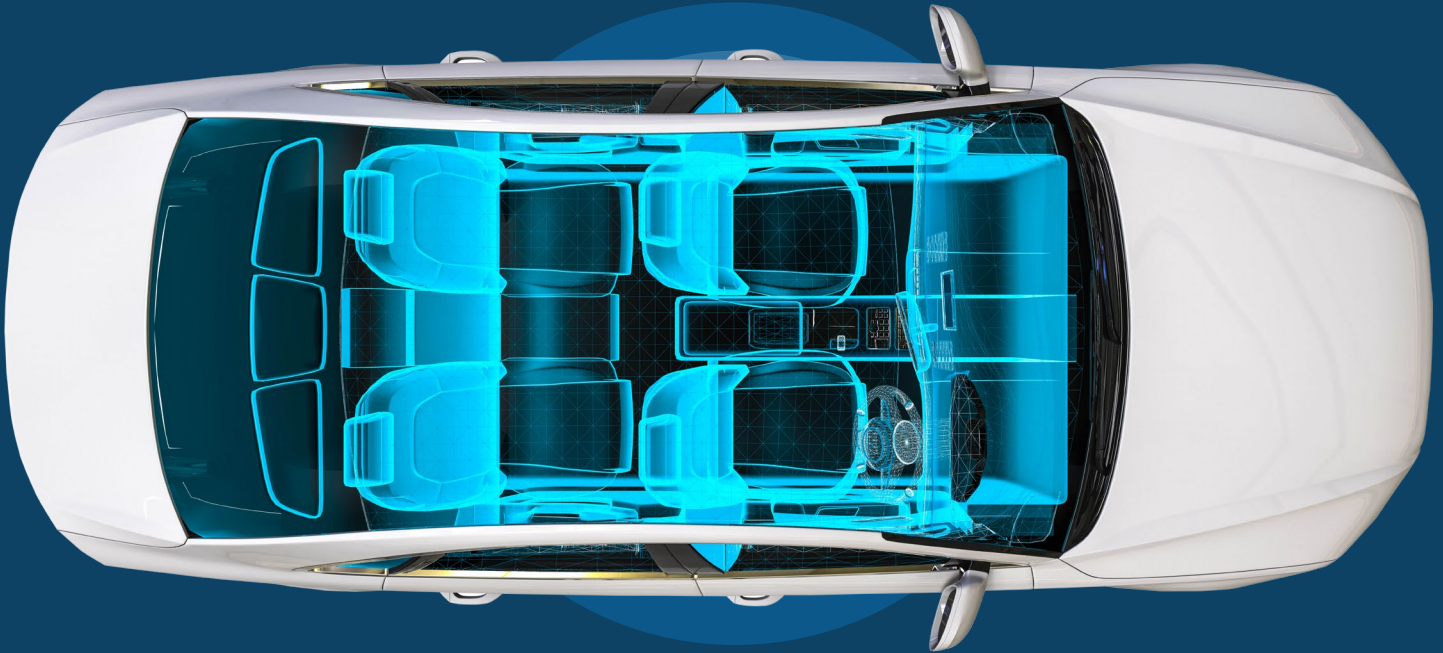


Qualcomm® Connected Car Application Reference Design (CCARD)

The Qualcomm CCARD is designed to enable OEMs and suppliers to easily and seamlessly integrate numerous advanced connected car technologies, using one framework. It is a Qualcomm reference design and software development platform for automotive telematics, featuring the MDM9250-6 System-on-Chip, and Qualcomm Snapdragon™ X16 LTE modem. OEM customers can directly leverage the CCARD design for development of their commercial devices and the platform also enhances software development with access to peripheral debug ports, a serial console interface, and a USB debug port.



LANTRONIX Automotive Solutions



Lantronix offers expertise in engineering services and product development best practices to the automotive market. Automotive market needs go beyond solely focusing on automotive grade components – success requires bringing together hardware and software component solutions from a multitude of suppliers while ensuring a quality innovative product with longevity, durability, and reliability.

Lantronix's experience with various semiconductor manufacturers (Qualcomm, NXP, etc.) as well as multiple OS providers (QNX, Green Hills Software, Android & Linux) enables the team to develop flexible designs for major automotive sub-systems including infotainment, Cluster/Control and Telematics.

Areas of Focus:



1. Telematics

- Integrating range of technologies for vehicle communication and precise tracking
- Wireless solutions; Cellular, Wi-Fi, Bluetooth, NFC & GNSS
- Qualcomm® C-V2X technology



2. Digital Cockpit

- Infotainment & cluster systems
- RTOS + hosted OSes
- Passenger entertainment
- Driver monitoring & vehicle status



3. Remote Device Management

- OTA updates
- Feature & data management
- Cloud connectivity

System Development & Integration:

1. Advanced system development leveraging the latest heterogenous SoCs from Qualcomm, NXP and others



- **End to end HW & SW support**
 - i. Multi-core SoCs, with ML/AI
 - ii. Diverse communication systems; Bluetooth, Wi-Fi, GPS, Cellular & Radio
 - iii. Advanced power management
 - iv. Device security, data authentication and access control

2. System partitioning with HW virtualization and SW hypervisors



- **Safety critical applications; secure, real-time**
 - i. RTOS support of QNX & Integrity (Green Hills Software)
 - ii. ISO26262 & ASIL compliant built on AutoSAR & μ -veIOSity
- **Infotainment applications; diverse, graphics heavy apps and UI**
 - i. HLOS support of Android & Linux

3. Advanced multi-media solutions



- **Multi-display partitioning**
 - i. Cluster
 - ii. HUD
 - iii. Rear/surround view mirror replacement
 - iv. Passenger/center console/rear-seat
- **Multi-camera vision**
 - i. Driver/occupant monitoring cameras
 - ii. Security/sentry/dash cameras
 - iii. Backup, surround view cameras
- **Advanced audio**
 - i. Multi-user phone, voice integration
 - ii. Speech control
 - iii. Premium sound

Design Services:



1. Your Automotive development partner offering flexible engagement models and engineering services tailored to your needs

2. Comprehensive product development

- i. HW design & manufacturing, from concept to volume production
- ii. SW development, from individual driver to full stack platform creation
- iii. ME & thermal design & manufacturing, from one off PoC to mass market turnkey devices

Intelligent Edge Solutions Services

Product Development

In addition to our ready for production embedded computing solutions, Lantronix has an experienced multidisciplinary engineering team that can complete all aspects of IoT product development, including: mechanical and RF design, electrical engineering, BSP and driver development, middleware and applications, rapid prototyping, certification, and mass production. Our comprehensive capabilities allow you to engage with one company to build your product from concept through production; avoiding the challenges and finger pointing that can occur when working with multiple vendors.



Software Engineering

Lantronix's software engineering team works with our technology partners at the earliest stages of new chip introduction, giving us valuable early access and knowledge of the newest high-performance technology. Our team is very experienced with embedded systems software having created countless board support packages and drivers for Android, Linux, Windows and QNX. Our driver experience includes power optimizations, radios (CDMA, GSM/GPRS, Wi-Fi, GPS, Bluetooth), FPGAs and various peripherals including USB, LCD, Touch, Camera, e-Ink, codecs and more.

Hardware Engineering

In addition to designing and developing our proprietary advanced development kits, hardware reference designs and high volume production system-on-modules (SOM), Lantronix's hardware engineering team develops custom embedded computing modules and peripheral boards tailored to our client's specifications.

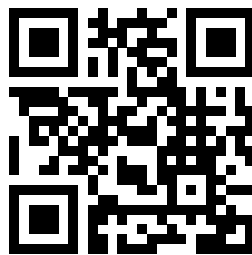


Mechanical Engineering

Lantronix's mechanical engineering team has extensive experience in the development and commercialization of mobile and IoT products. This design experience spans a breadth of product types, with a variety of thermal and structural engineering challenges, high density device packaging, as well as design for ruggedized products. The mechanical design and manufacturing experience can support proof of concept/prototype projects and low to high volume fabrication and production processes.

Embedded Compute Solutions

LANTRONIX[®]



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