Improve Time to Market for Industrial Edge Devices with Qt and WINSYSTEMS

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SPEAKERS

Qt

WINSYSTEMS®

+

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The Qt Company

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Technical Sales Director

WINSYSTEMS

Jack Smith
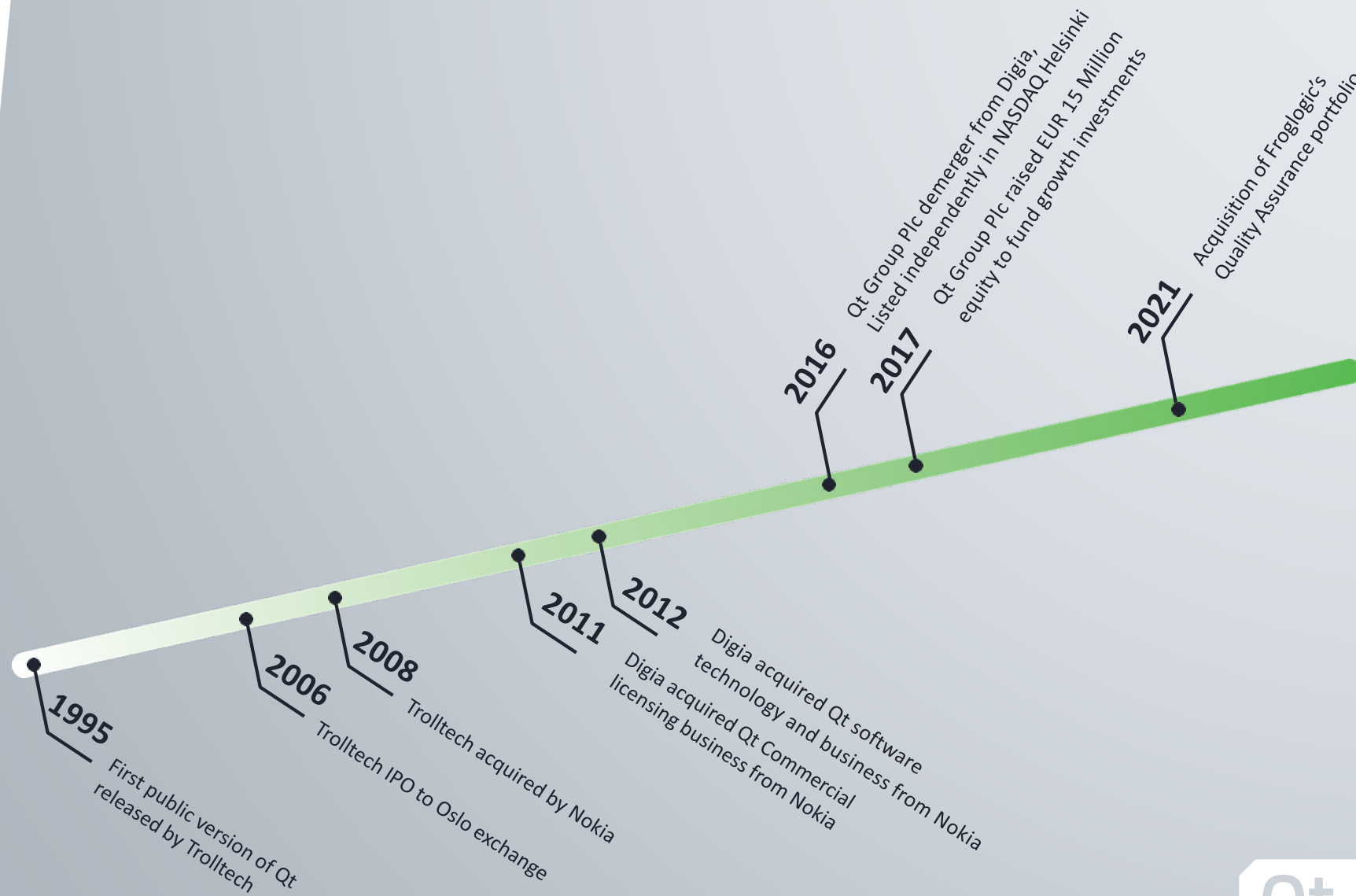
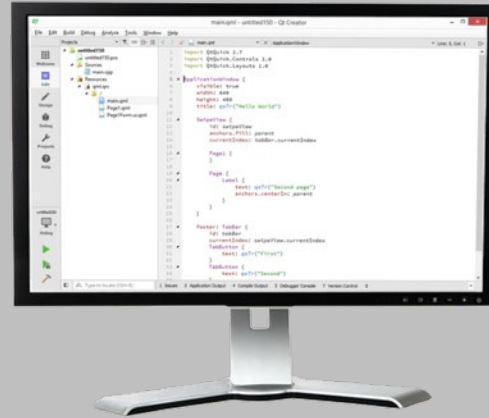Technology Director

WINSYSTEMS

Continuity since 1995

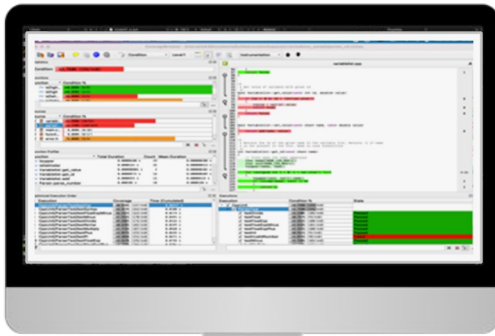**1995**
First public version of Qt released by Trolltech

2006
Trolltech IPO to Oslo exchange

2008
Trolltech acquired by Nokia

2011
Digia acquired Qt Commercial licensing business from Nokia

2012
Digia acquired Qt software technology and business from Nokia

2016
Qt Group Plc demerger from Digia, Listed independently in NASDAQ Helsinki

2017
Qt Group Plc raised EUR 15 Million equity to fund growth investments

2021
Acquisition of Froglogic's Quality Assurance portfolio

Qt

Enabling Collaborative, Agile Development

Design

Qt Design Studio

Develop

Qt Creator IDE

Test

Squish, Qt Test, Coco

Qt Portfolio

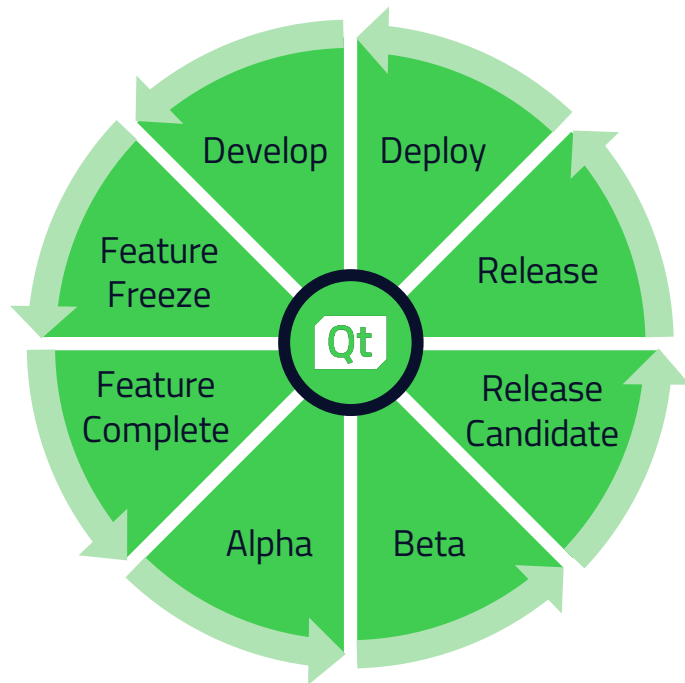DEVELOPMENT TOOLS

DESIGN TOOLS

QUALITY ASSURANCE TOOLS

MCU SOFTWARE DEVELOPMENT TOOLKIT

Qt FRAMEWORK

PREMIUM SUPPORT

PROFESSIONAL SERVICES

Schedule Driven Releases Twice a Year

› Qt 6.x.0 framework releases with new features

› April and September every year

Feature- and Fix-Driven Releases

› Qt 6.x.y framework releases with bug, performance and security fixes
  › No new features

› Three Qt Creator and Qt Design Studio annual releases + Qt for MCUs releases

› Every third minor version is an LTS – Long Term Support version with 3-year support

More Than a Collection of Libraries

› **Frameworks are opinionated**

  › Consistent APIs and documentation

  › Structure

  › Best practices – Frameworks provide proven solutions

  › Dictates how to do things – can be extended

› **Frameworks come with a toolbox**

  › IDE, toolchains, etc.

  › Makes it easy to apply best-practices

› **A good framework drives structure and consistency**
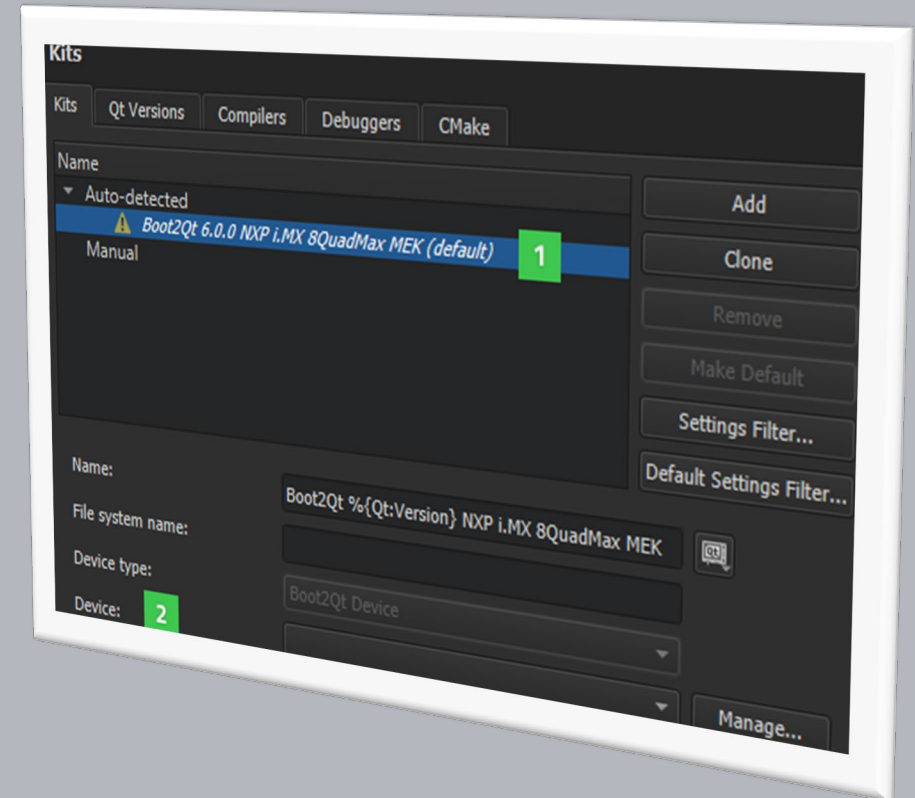
"Collection of libraries"   VS   Framework

Boot to Qt

Enjoy:

› Prototype and see UI design live on real embedded environment

› Getting the embedded development environment up and running in no time.

Use:

› Light-weight, Qt-optimized, full software stack for embedded Linux systems

› Transfer to production deployments with Yocto when needed

› Works with Qt Design Studio

UI Technology for Every Use Case

› Qt Modelling Language (QML) for designing touch-based UIs and embedded devices

› Qt Widgets for complex desktop UI with mouse and keyboard use

› Qt for WebAssembly bringing Qt to the web

› HTML 5 can be embedded for web-based content
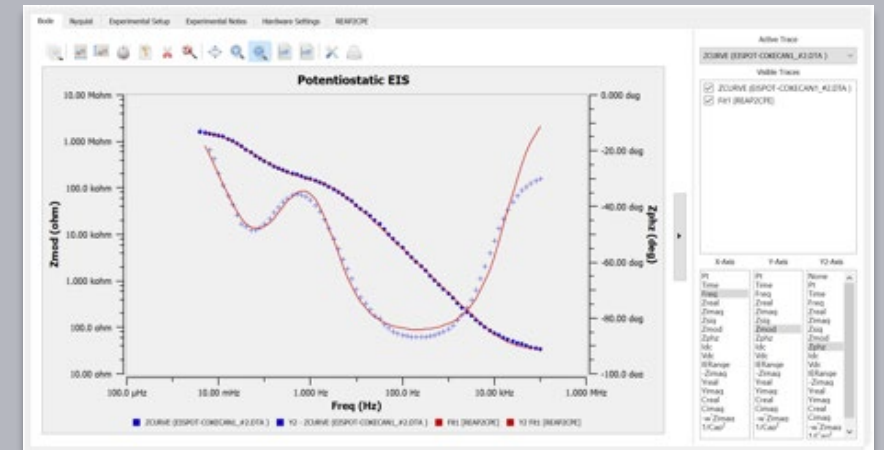
WINSYSTEMS®

EMBED SUCCESS IN EVERY PRODUCT!

Industrial Embedded Computer Solutions

Embed Success in Every Product with WINSYSTEMS®

- More than 39 years as a leader in the embedded computing industry
- Trusted resource for industrial embedded systems expertise
- Highly reliable industrial-grade products with long-term availability
- Knowledgeable and responsive technical staff
- Designed and manufactured in Texas

COM Modules to Complete Systems

## Technology solutions that transcend boards

- Embedded computing solutions utilizing a variety of proven designs:

  COM Express, Single Board Computers, Panel PCs, Industrial Computers
- Cost-effective solutions designed to support existing technology and future upgrades
- Security-enabled hardware and software partner ecosystem
- Average product life cycles of 10+ years

A Proven Consultative Approach

Innovation-driven

- Specialists in embedded computer products, accessories and software
- Focused on solving each client's unique application challenges
- Skilled in designing and executing embedded solutions for many industries
- Expert guidance in the selection of optimum product and solution design strategies:
  - Commercial Off The Shelf (COTS)
  - Modified COTS
  - Custom solutions
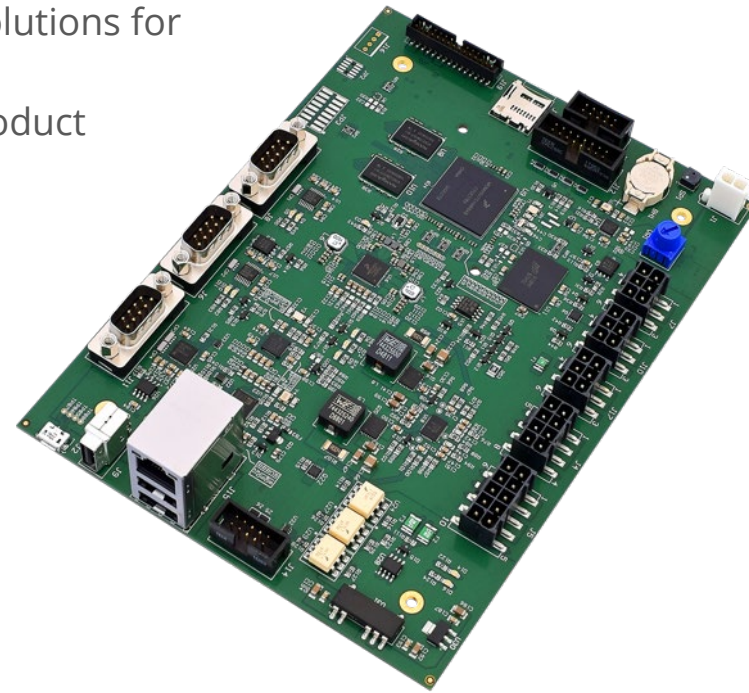
Proven Manufacturing and Design Expertise

Centrally based U.S. headquarters

- Headquartered in Grand Prairie, Texas, U.S.A., between Dallas and Fort Worth–an established, dynamic regional technology center
- In-house engineering and manufacturing allows for prototyping, quick-turn production cycles, and full product manufacturing with maximum quality and efficiency
- All departments necessary to conceive and execute products—from project initiation to product launch—located on a single corporate campus

Industrial Internet of Things – Cybersecurity

Device security starts with the hardware

- Internet of Things Cybersecurity Improvement Act of 2020
  - Bipartisan Support
  - Signed into law by President Trump December 12/4/2020
- WINSYSTEMS COM Modules and new single board computers enable:
  - Establish Root of Trust (RoT)
  - Secure boot firmware
  - Hardware data encryption
  - TPM-2.0 onboard
- Software ecosystems partners further enable:
  - Security patch updates and Continuous Integration
  - Secure Over-the-Air (OTA) Updates
  - Secure communications
  - Security Key management

WINSYSTEMS®

EMBED SUCCESS IN EVERY PRODUCT!

Partners in Developing Secure Embedded Solutions
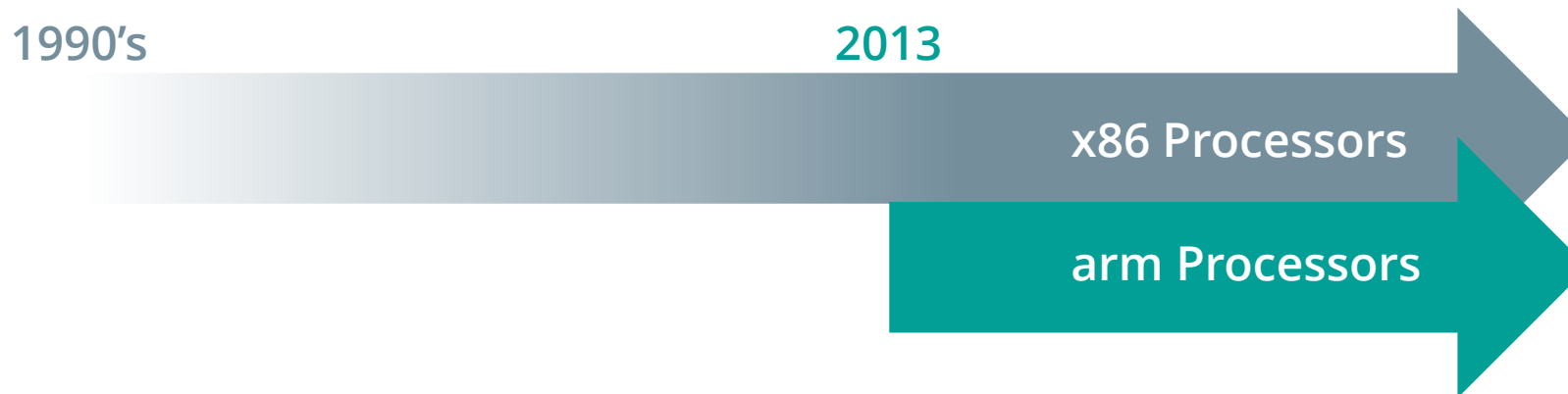
EMBED SUCCESS IN EVERY PRODUCT!

Why WINSYSTEMS and Qt Partnership?

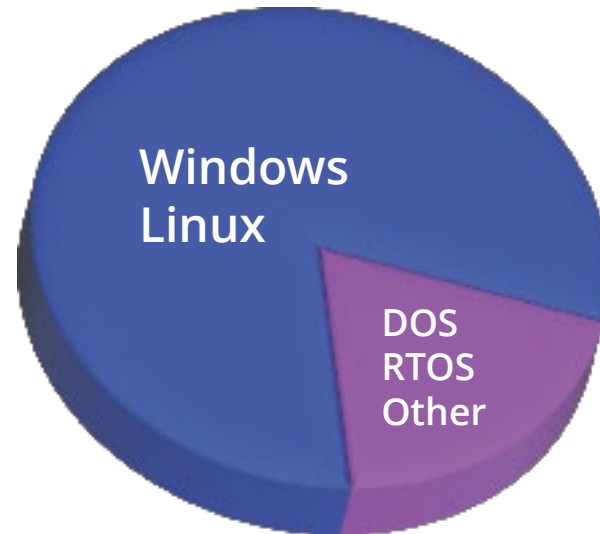## Mutual Customers Actively Spanning Legacy to Future Designs

- **WINSYSTEMS has almost 40 years of products in the field**
  - All SBCs were based on x86 CPUs between the 1990's until 2013
  - 2013 introduced our first Arm based SBC
  - Future product roadmaps have product lines for both x86 and Arm CPUs

1990's   2013

x86 Processors

arm Processors

EMBED SUCCESS IN EVERY PRODUCT!

Why WINSYSTEMS and Qt Partnership?

## Mutual Customers Actively Spanning Legacy to Future Designs

- **Operating systems have also changed drastically over the years**
  - Windows and various Linux Distros comprise about 80% of total operating system usage
  - DOS and RTOS's the other 20%

Why WINSYSTEMS and Qt Partnership?

Mutual Customers Actively Spanning Legacy to Future Designs

- **An Energy Client was one of the first known cases of WINSYTEMS + Qt back in 2015**
  - Using legacy x86 based SBCs but was planning to use Arm in the future
  - WINSYSTEMS SBCs had a 20+ year install base with client due to industrial requirements
  - Client selecting Qt as development platform so they could write application code once and run on current x86 based products and future Arm based SBCs
  - Client was very happy with the implementation of Qt development software

EMBED SUCCESS IN EVERY PRODUCT!
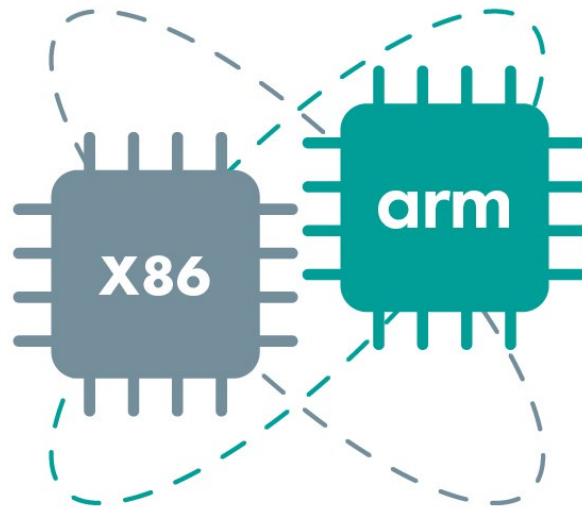
Qt Development from the Engineering Perspective

3 Ways the Qt and WINSYSTEMS Partnership Helps Engineers

1. WINSYSTEMS' Edge Computing Platforms are **Rugged and Security-Enabled**
   - Designed for Industrial Environments
   - Designed with security in mind for Critical Infrastructure
   - USA Manufactured Quality
   - Offers a software ecosystem for OEMs to leverage

2. Qt for Device Creation **Significantly Reduces Development Time**
   - Code once, deploy across platforms benefit for Arm and x86 lines
   - SDK and QBSP Supported Embedded Boards for Rapid development
   - Pre-built libraries for a multitude of industrial communication protocols

3. WINSYSTEMS + Qt Partnership **Speeds Time to Market**
   - Provides proven industrial Edge Computing platform with Pretested libraries that will have a development running in minutes!
   - Certified code base for communications.

Demo Hardware: ITX-P-C444

Why is it the Focus Product?

- Truly Industrial Arm product
- Very small form factor
- Flexibility to add low speed I/O sensor
    - Low speed IO: GPIO, I2C, SPI
- Camera: MIPI CSI camera input
- Security: TPM 2.0 on board
- Power input: +9V to 32V DC
- Operational : -40 to +85C

Industrial Use Case Example

Oil & Gas Remote Monitoring and Surveillance

- Critical Infrastructure Monitoring
- Security a top concern with recent cyber attacks
- Artificial Intelligence (AI) Vision System Alerts of activity
- Reduces number of on-site visits and improves safety

Demo

Ask your questions

Thanks for joining!

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