

PTR Group Capabilities

2005



About The PTR Group

- ✦ Founded in 2000
- ✦ Founders are former Wind River and SPARTA engineers
- ✦ Employee Owned
- ✦ Staff of 20
- ✦ No Debt, No VC, Revenue Positive since inception
- ✦ We Zoom

What We Do

We are focused on Embedded and Real-Time Systems, Solutions, Devices and Training

- ✦ Defense Systems
 - ✦ Aerospace Systems
 - ✦ Professional Services
 - ✦ Training
- Software and Hardware
 - Spacecraft and Ground
 - Consulting and Development
 - RTOS and Embedded Linux

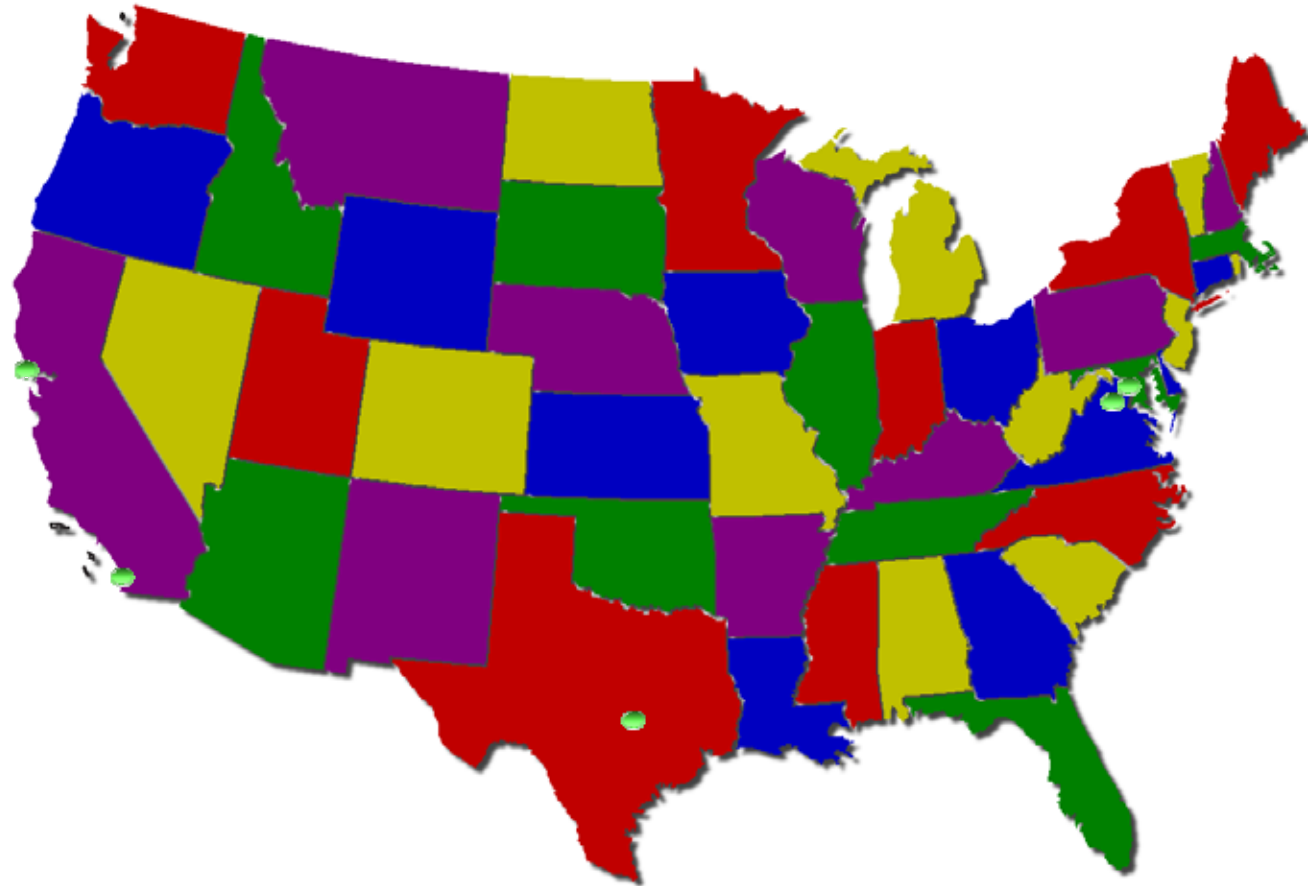
Our Experience

- ✦ Our typical engineer has **over 16 years** of embedded and real-time experience
 - ➔ We have over 100+ staff years with VxWorks alone
- ✦ Expertise
 - ➔ Software, hardware and systems experience
 - ➔ Successful development/product track records
- ✦ Wide ranging backgrounds
 - ➔ Technical - From scientific instrumentation to industrial controls to satellite communications
 - ➔ Support – Hands on with the customer, FAE experience
 - ➔ Business – Building organizations from the ground up, management, products, marketing and sales

National Organization

Offices and Resources in

- Virginia
- Maryland
- Texas
- California



A Few Customers

A More Complete List Is On Our Website



WIND RIVER



Defense Systems

- ✦ Embedded and Real-Time Systems
- ✦ Distributed Control Systems
- ✦ Protocol Converters
- ✦ VoIP Software and Systems
- ✦ NTDS, FDDI, GigE and other bus systems
- ✦ Mil Standard Software Development Experience
- ✦ CMM-3 Software Development
- ✦ Security Clearances (TS Facilities)

Defense Systems Experience

✦ As PTR Group

- Supported Army Research Lab on embedded components of Paladin-based ordinance fusing system
- Currently supporting NRL 5540 on secure network router system
- Supported NSWCDD - NSWC PHD/L
 - MK119 Mod10 Gun Mods
- Supported Titan on USMC Hovercraft system



✦ As SPARTA/UFT...

- OEM Rack Systems & Custom Software
 - ICAN Subsystems for CVN-69
 - NPOI Control System
- Custom CPU Cards and Firmware
 - Rivet Joint & Big Safari AV and IF Switches
- Drivers & Application Software
 - NTDS/FC/FDDI
 - Trusted Solaris/Linux/VxWorks

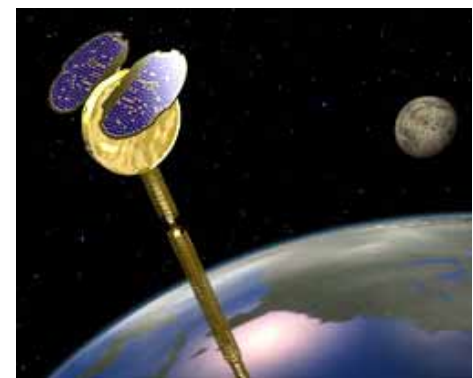
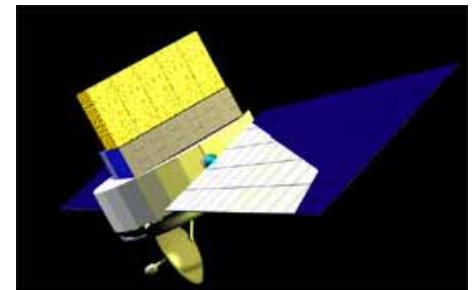
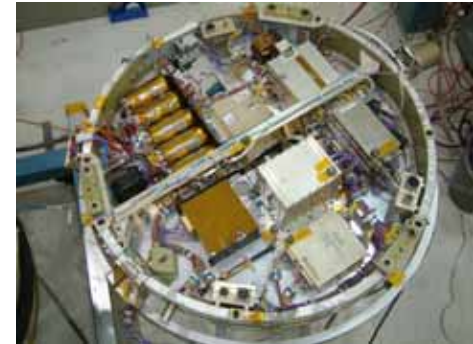


Aerospace Systems

- ✦ Spacecraft bus systems and payload software experts
 - Quick turn spacecraft experience, less than 1 year concept to delivery
- ✦ Spacecraft software and system architecture experts
 - Constellation development
- ✦ Spacecraft ground control systems development
 - Proprietary and "Off The Shelf" systems
- ✦ PTR Group personnel are the original developers of the Orbital Sciences Microstar spacecraft bus
- ✦ Developed software platforms have been operational on orbit for over 200 cumulative years

Aerospace Experience

- ✦ Key developer for TacSat-1 and TacSat-2 programs at the Naval Research Lab
 - Spacecraft Software
 - Virtual Mission Operations Center (VMOC) system
- ✦ Tactical Maritime Awareness (TMA) Program Support – DoD Office of Force Transformation (OFT)
- ✦ Supporting the Gamma Ray Large Area Space Telescope (GLAST) at NRL
- ✦ Supporting Orbcomm constellation of satellites
- ✦ Turned around USMC Mublcomm handset program for Orbital



Professional Services

* Consulting

- Assessment & Feasibility
- Requirements Analysis
- Design Guidance
- Tool and OS Selection
- Hardware / Software Integration
- Project Startup

* Development

- Software Development
- Firmware Development
- Hardware Development
- Turnkey Development
 - We can do the whole job
 - Hardware, Software, Firmware, Drivers



PS Core Competences

- ✦ RTOS/Embedded Linux Development
- ✦ RTOS to Linux porting
- ✦ Networking, WiFi, Routing and Protocols
- ✦ Datacom and Telecom Expertise
- ✦ Drivers, BSPs and Board Bringup
- ✦ Embedded Security Systems
- ✦ Embedded Database Systems
- ✦ Distributed Systems
- ✦ Spacecraft Systems



Training and Courseware

- ✦ We teach Real-Time techniques and technology
- ✦ Our courses are structured from our modular courseware
- ✦ Current offerings
 - Introduction to Embedded Linux
 - Linux Device Drivers
 - Moving from RTOS to Linux
 - Real-Time Engineering featuring VxWorks
 - Debugging VxWorks Systems
 - Board Bringup Techniques
 - Debugging Linux Systems
- ✦ Custom Courseware available
- ✦ We currently deliver courses for **Wind River** in North America and **MontaVista** Worldwide
- ✦ We develop courseware for **MontaVista** and **Wind River**



WIND RIVER
CUSTOMER EDUCATION


montavista[™]



The PTR Group

- ✦ Experienced Engineering Expertise in Embedded and Real-Time Systems
- ✦ Domain Expertise in Defense and Aerospace systems
- ✦ Professional Services for Consulting and Development
- ✦ Training for Engineering Staff Development