



# Curtiss-Wright Controls Overview



**CURTISS  
WRIGHT** Controls, Inc.  
Embedded Computing



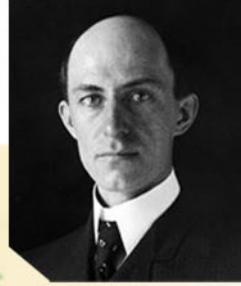
**CURTISS WRIGHT** Controls, Inc.  
Embedded Computing

# Building on our Legacy . . .

Glenn Curtiss

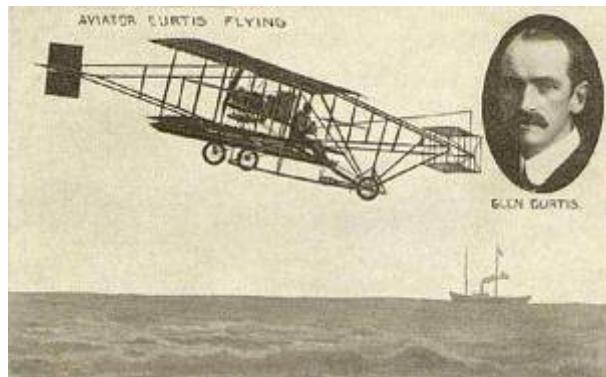


Orville & Wilbur Wright



**100+** years of  
aviation  
heritage

**75+** years in  
American  
industry





# Heritage

**1929**

*Curtiss-Wright formed through the merging of 12 Wright and Curtiss companies*

*Listed on The New York Stock Exchange*

**CW**  
LISTED  
NYSE

**1943**

*Curtiss Aircraft and Wright Aircraft Engines help defend Europe During World War II*



**1949-58**

*CW major supplier of engines to commercial aviation industry*



**1968**

*Expands into metal treatment business*



**1998-99**

*Expands commercial energy business*



**2004**

*Celebrates 75<sup>th</sup> Anniversary*



**1961**

*Expands into flow control business supporting U.S. Nuclear Naval Program*



**1978-88**

*Curtiss-Wright refocus its aviation business on aircraft component maintenance, repair, overhaul, refurbishment and rebuilding.*



**2001**

*Curtiss-Wright expands into Embedded Computing market*

**2001-05**

*Curtiss-Wright completes recapitalization*

**CURTISS WRIGHT**

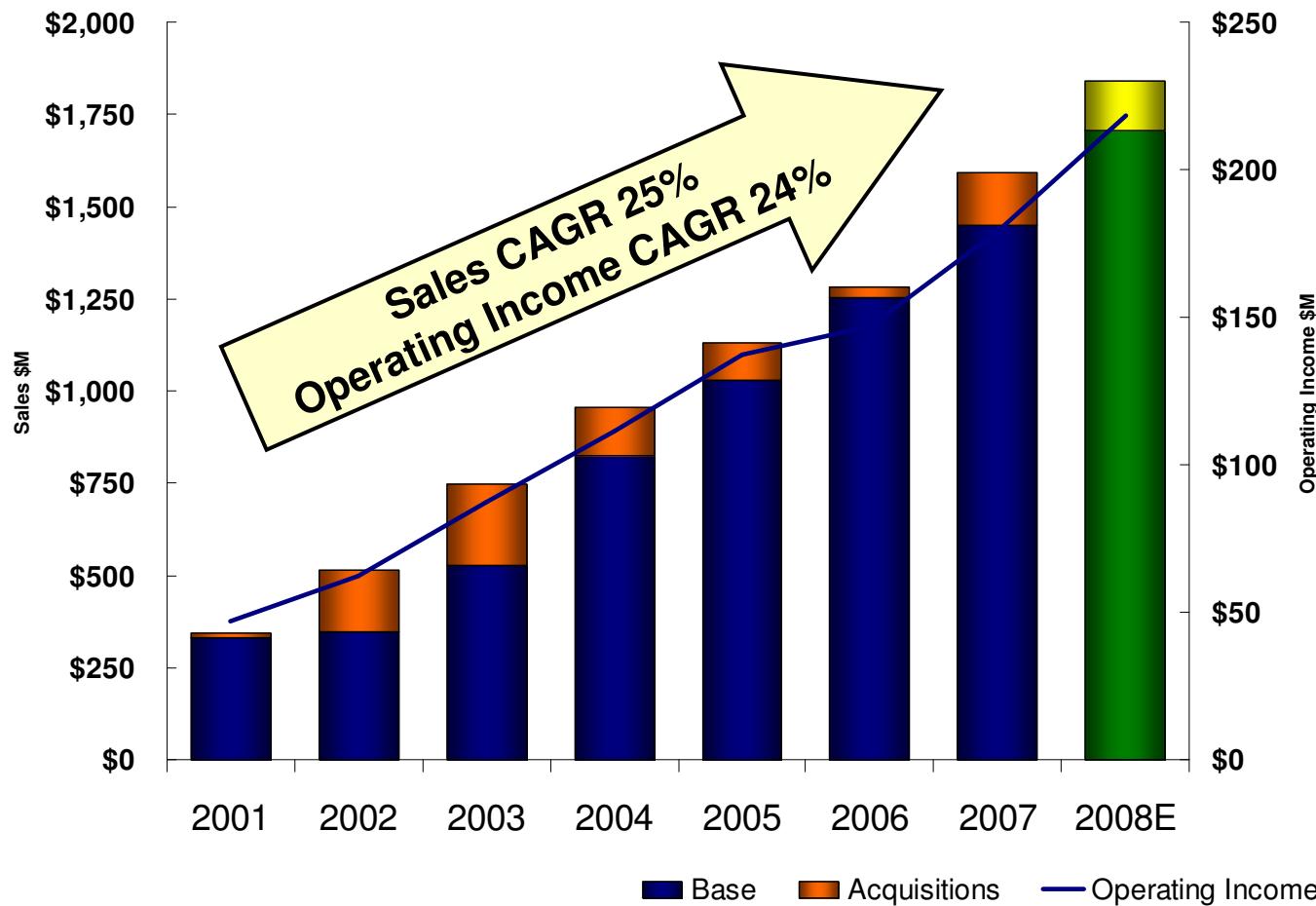


**2007**  
*Curtiss-Wright Anticipates \$1.5 Billion in Sales*



# Curtiss Wright Recent Performance

Track record of performance and growth





**CURTISS WRIGHT** Controls, Inc.  
Embedded Computing

# Curtiss-Wright Top Level Business Groups

**CURTISS WRIGHT**

 Metal Improvement Company, Inc.



« Shot Peening

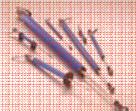
Heat Treating »



 **Curtiss-Wright**  
Flow Control Corporation

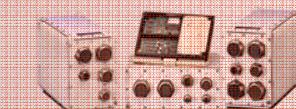


**CURTISS WRIGHT** Controls



Engineered Systems

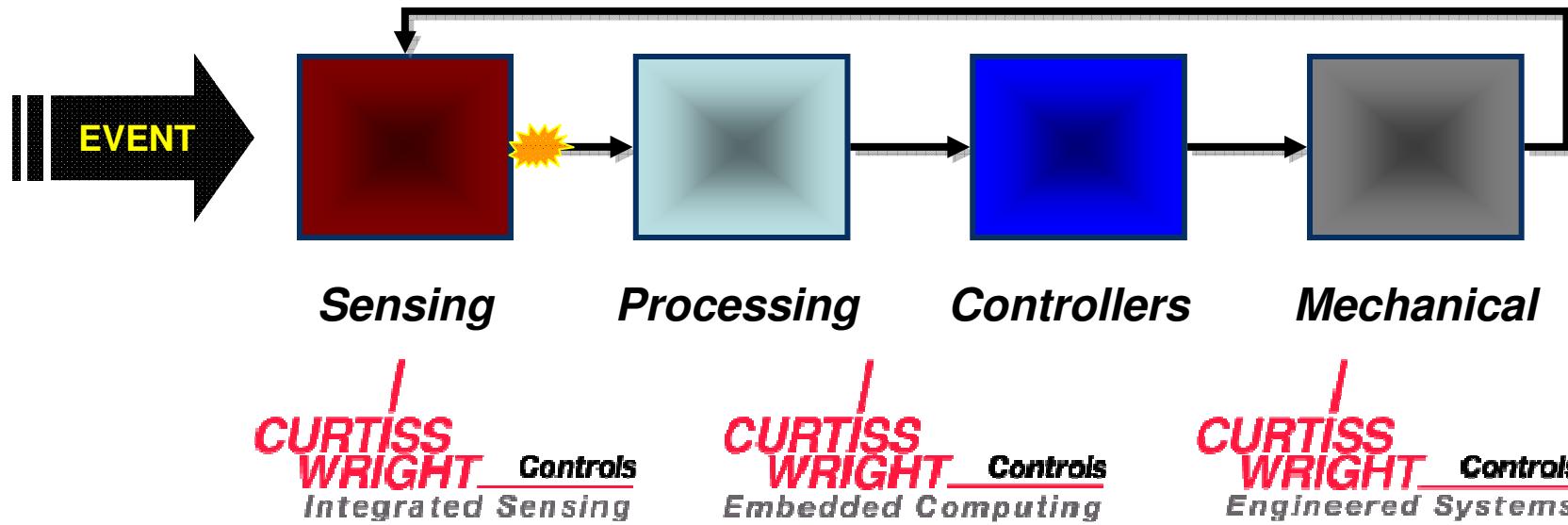
Integrated Sensing



Embedded Computing



## Curtiss-Wright Controls - A Controls Company at Heart



A Comprehensive Foundation of Complementary Products



**CURTISS WRIGHT** Controls, Inc.  
Embedded Computing

# Curtiss-Wright Controls Business Units

- Three major business segments
- 2543 total employees worldwide
- 2007 Sales \$592 million

**CURTISS WRIGHT Controls**  
Embedded Computing

Subsystems

Modular Solutions

Data Communications

Radar/Video Solution

Manufacturing Services

**CURTISS WRIGHT Controls**  
Integrated Sensing

Avionics & Electronics

P&G Industrial Products

Sensors & Controls

**CURTISS WRIGHT Controls**  
Engineered Systems

Flight Systems

Drive Technology

EM Technologies

Product Support

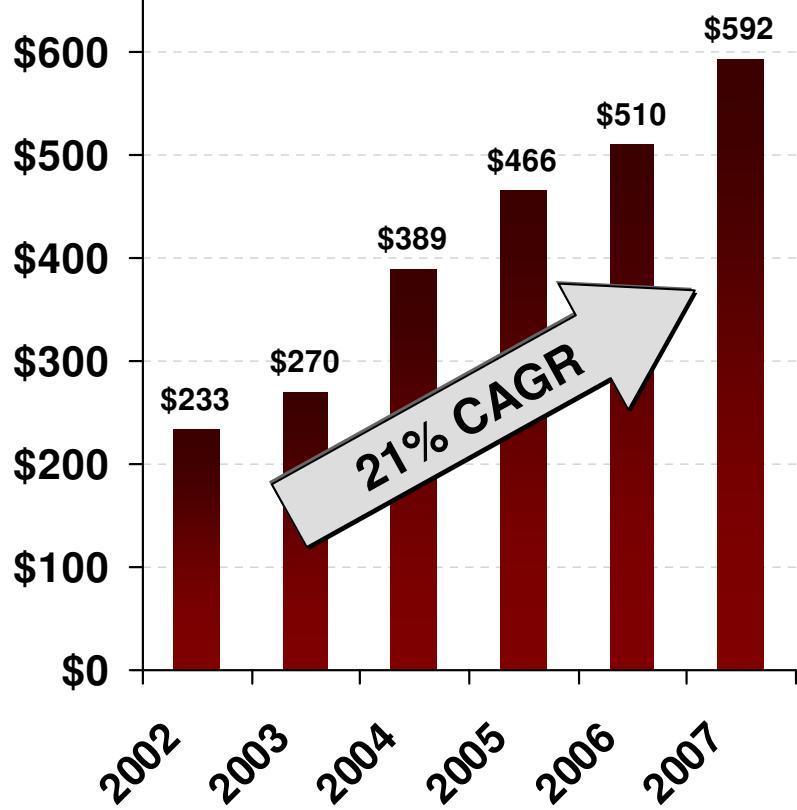
Marine Defense

Industry Leader in Design, Manufacture and Service of Motion Control  
Components to Subsystems

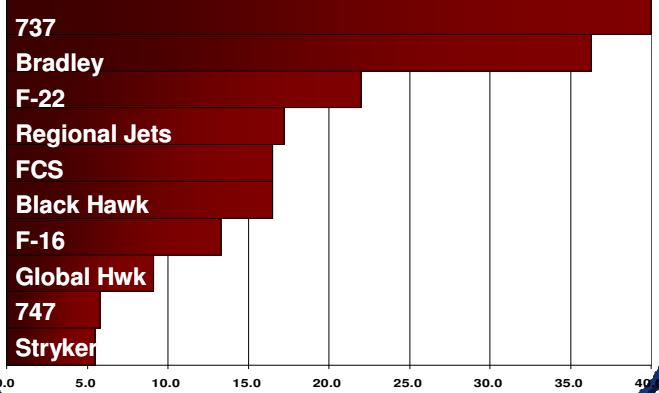


# Curtiss Wright Controls

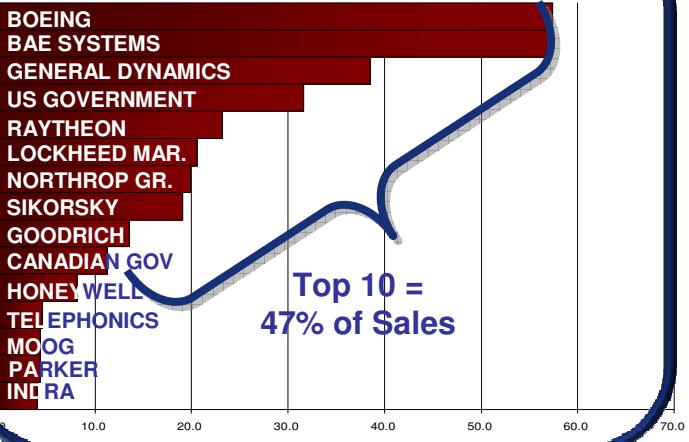
**C-W Controls Sales (2002 - 2007)**



**2007 Top Programs**



**2007 Top Customers**





# Commercial Aerospace



Trailing Edge Flap  
Rotary Actuators



Leading Edge  
Flap Actuators



Position  
Sensors



Cargo Door  
Actuators



Trailing Edge Flap Position  
Sensor Gearboxes



Trailing Edge  
Flap Drives



Brushless DC  
Motors for Cabin  
Pressure Control  
Systems



Nacelle  
Debris Door  
Actuators

Throttle  
Quadrant  
Controllers



Power  
Conversion  
Units



Rotor Ice Detection and  
Protection Systems



Aircraft Computer  
Systems



Fire Protection  
Systems





# Military Aerospace



Canopy Actuators



Weapons Bay Door Drive Systems



Leading Edge Flap Actuation Systems



Air Data Computers



Airborne Recorders



Position Sensors



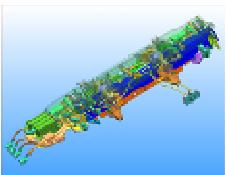
Torque Sensors



Cockpit Control Feel and Drive Actuators



Flight Control Computers



Weapons Bay Hoist Systems



Mission Management Computers



Navigation Subsystems



SBC, DSP, Graphics, I/O Cards



# Ground Defense



Turret Drive  
Stabilization Systems



Gunner  
Handles



Obsolescence  
Management



Autoloader and  
Replenishment  
Controllers



Hydro-pneumatic  
Suspension Systems



Ammunition Handling  
Systems



Power  
Supplies



Position  
Sensors



SBC, DSP, Graphics,  
I/O Cards



**CURTISS WRIGHT** Controls, Inc.  
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# Marine Defense



Aircraft Ship  
Integrated Secure  
and Traverse  
(ASIST) System



Aircraft Recovery, Assist,  
Secure and Traverse  
(RAST) System



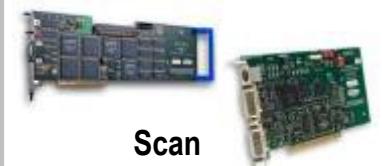
Towed Line Sonar Array  
Handling Systems



Radar Display Systems



Digital Screen  
Recorders



Scan  
Converters



Variable Depth Sonar  
Handling Systems



Sonar Domes



Specialized  
Structures



SBC, Graphics, I/O  
Cards



# Industrial



Automated Passenger Bridge (APB) Systems



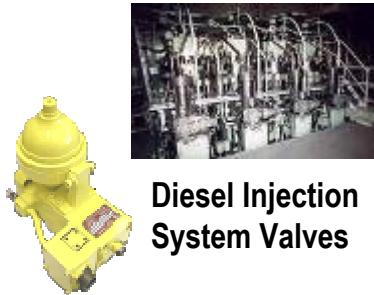
Linear Position Sensors



Rotary Position Sensors



Joystick Controllers



Diesel Injection System Valves



Hydraulic Actuators



Audio and Video Controllers



Digital Panel Indicators



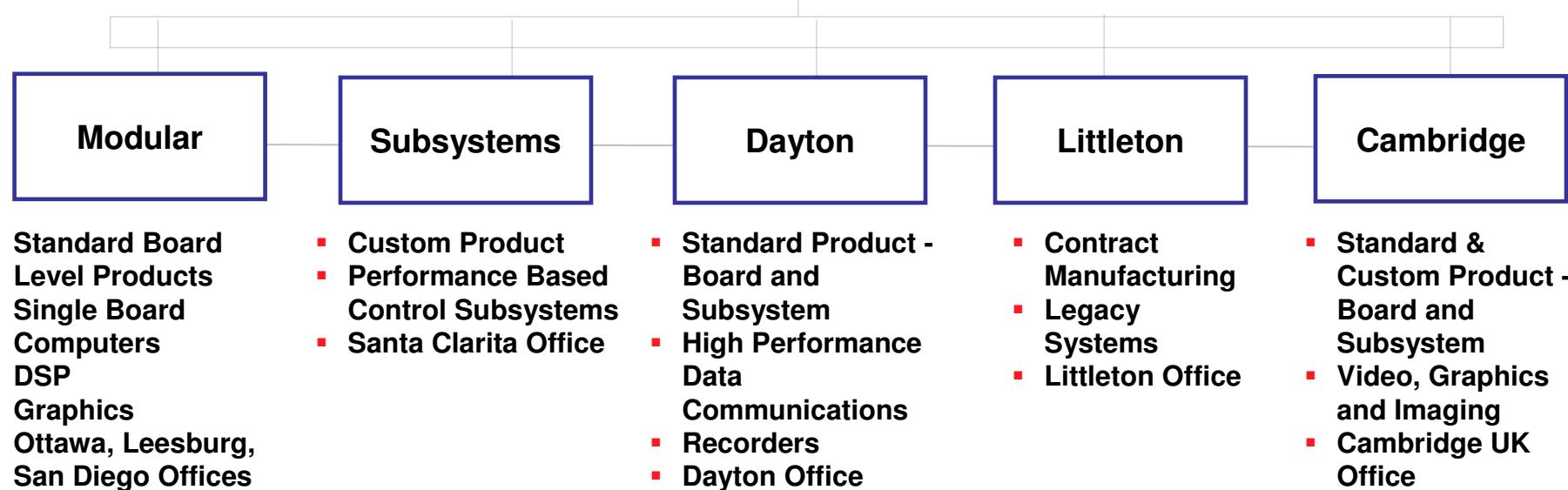
High Speed I/O



SBC, DSP



## CWCEC Business Units



Each with 20 years experience in the embedded computing market



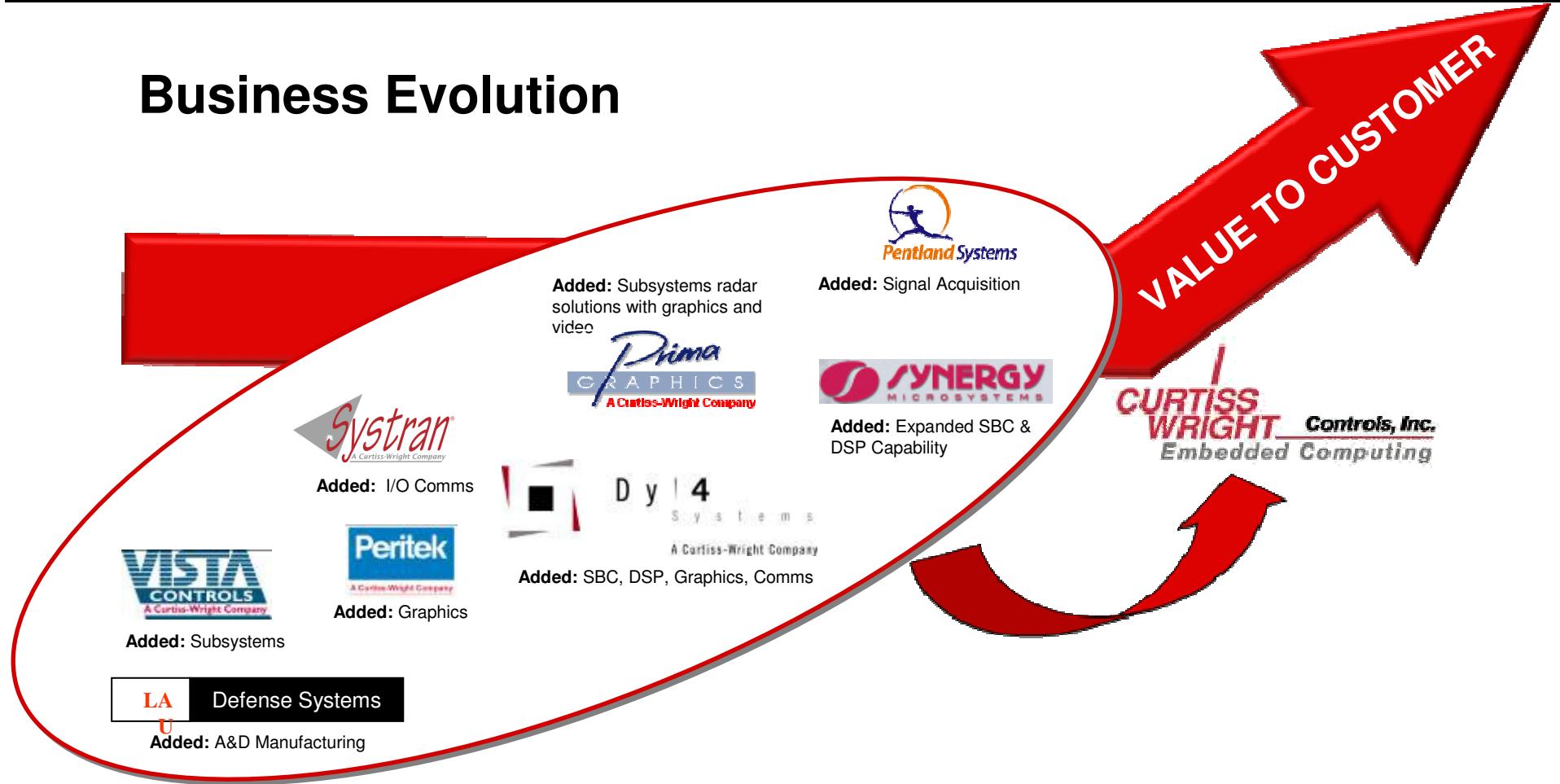
# Global Sales Team





# Curtiss-Wright Controls Embedded Computing

## Business Evolution



Utilizing the combined strength and experience of our integrated companies



**CURTISS WRIGHT** Controls, Inc.  
Embedded Computing

## Diverse International Customer Base



((argon)ST)



**Raytheon**



**Over 2000 Customers  
in 26 Countries**

**Rockwell  
Collins**



communications



**Indra**

**HARRIS**



**ITT Industries**  
Engineered for life



**MITSUBISHI**



**Honeywell**

 Galileo Avionica

 **SELEX**  
Sensors and Airborne Systems

**BAE SYSTEMS**



**CURTISS**  
**WRIGHT** Controls

**Systems Solutions....**  
Massachusetts Operations





- The Littleton, MA Operations Provides Engineering and Comprehensive Manufacturing Services to the Defense & Aerospace Industries...

- Circuit Card Assembly (CCA) and test
- System level assembly integration and test
- Additional services:
  - Test equipment design/build
  - RF and Electrical design services
  - Design Qualification
  - Product Test
  - Lifecycle support: component selection, Obsolescence mitigation and management, design enhancement, technology insertion





## Littletown, MA Operations Facility Statistics:

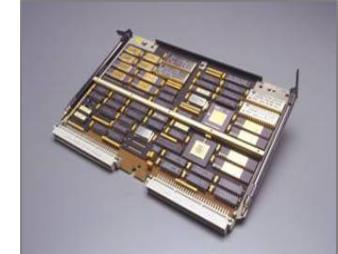
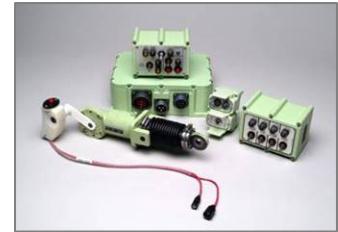
- **Plant size: 57k sq/ft**
- **Approximately 160 employees**
- **Location – 50 miles NW of Boston**
- **50+ years of manufacturing experience**
- **25+ years manufacturing into the Military Ground Vehicle and Rotary Wing markets**
- **99% of business is with the United States Government and Prime, Military Contractors**





## Littletown, MA Manufacturing Capabilities

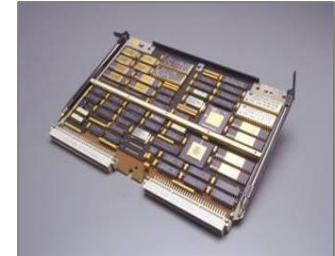
- Electronics Manufacturing Services (EMS) – Manufacturing Capabilities:
  - Circuit Card Assembly
    - In addition to modern CCA, we have retained full leaded through hole capability to serve ongoing and legacy Defense BTP.
    - In-Circuit test and Automated Optical inspection
    - Live burn in
    - Conformal Coating done in house





# CW-Littleton's Manufacturing Capabilities

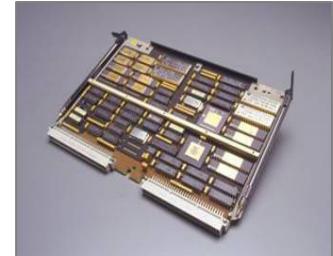
- Electronics Manufacturing Services (EMS) – Manufacturing Capabilities:
  - Wiring Harnesses
    - All gages (00 to 40)
    - Every connection, junction and pin is verified.
    - Every crimp setup is validated before and after use with pull test to failure.
    - Any wire count
      - see 600 wire harness at right
    - Any length





# CW-Littleton's Manufacturing Capabilities

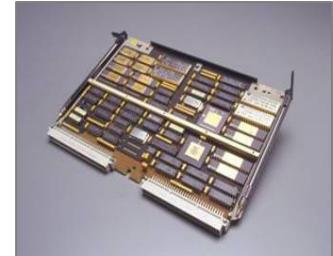
- Electronics Manufacturing Services (EMS) – Manufacturing Capabilities:
  - Systems/Sub-systems/Boxes
    - Military, product box builds on multi-shift operation
    - Quick turn, small batch production
    - Flexible “Lean Cells” assembly: provides efficient, ongoing production
  - Network of proven suppliers: casting houses, precision machine shops, fabrication shops, paint shops that are experienced, Military metal working businesses, providing high capacity, rapid response and assured product integrity
  - Small internal machine shop supports tooling, fixtures, prototype builds and engineering modifications





# CW-Littleton's Manufacturing Capabilities

- Electronics Manufacturing Services (EMS) – Manufacturing Capabilities:
  - Testing
    - Complete Electrical, Electronic and RF test equipment, including power supplies, loads, networked scopes, test control PCs, etc. All equipment is readily reconfigured into product specific test stands
    - Thermal Cycling , Hot and Cold burn in, Cold start, Hot Start and Thermal Shock Chambers
    - Combined Vibration/Thermal Environmental Stress Screening
    - Interconnection test, high pot, continuity and isolation
    - Automated switch testing, Automated circuit protection testing through trip and reset





## Additional CW-Littleton Capabilities

- Comprehensive Manufacturing Services (CMS) – Competencies:
  - Obsolescence Mitigation
  - Engineering Services
  - ESS Lab / Testing / Quality Assurance
  - Program Management
  - Product Life Extension

We are more than a Job Shop, and are committed to Supporting our customers throughout their product lifecycle





## Customer / Program Snapshots

- BAE (UDLP) / Bradley
- TACOM / Bradley and More
- CECOM / Radar Warning
- General Dynamics / Abrams and More
- Textron / Armored Security Vehicle

**BAE SYSTEMS**



**GENERAL DYNAMICS**  
Strength on Your Side™

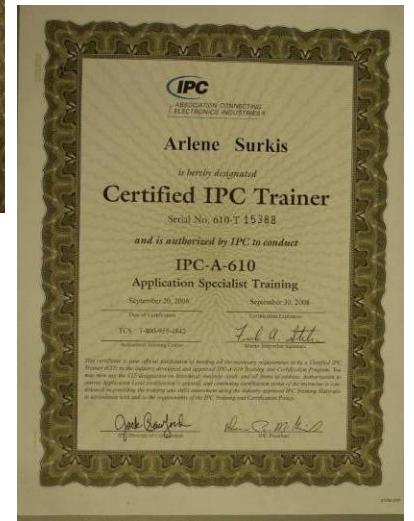
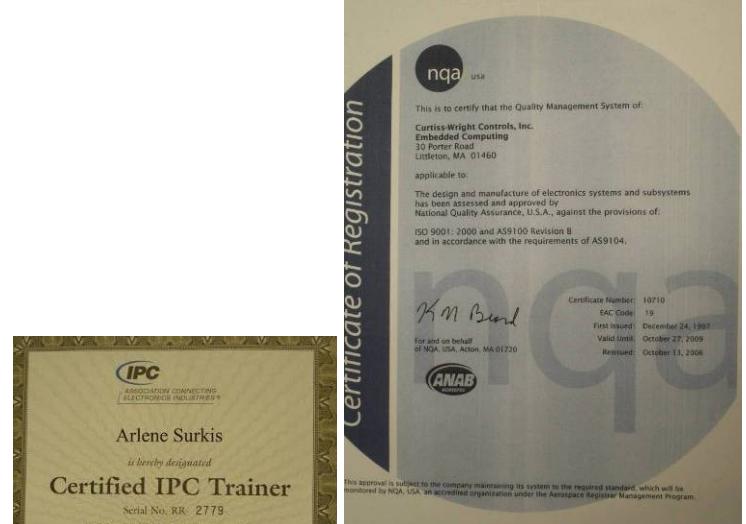
**TEXTRON** Systems





# Certifications and Qualifications:

- **Quality**
  - Quality: AS9100
  - Quality: ISO 9001: 2000.
  - Resident on-site Government QAR.
- **Manufacturing**
  - ESD control: MIL-STD-1686 & ANSI/ESD-S2020.
  - Soldering:IPC-A-610D & J-STD-001D Class 3.
  - Conformal coating: MIL-I-46058 & IPC-A-610C.
- **Purchasing**
  - Defense Contract Management Agency (DCMA) / Contractor Purchasing System Review Certification (CPSR).
- **Accounting**
  - Approved by Defense Contracts Auditing Agency (DCAA)
- **Facility Clearance**
  - Cleared to SECRET
  - Security Officer on site





## Curtiss Wright Expansion

### Expected Growth:

**2007 = \$38M**

**2008 = \$40M**

**2009 = \$45M**

**2010 = \$54M**

### Drivers:

- ✓ Organic
- ✓ New capabilities
- ✓ Curtiss Wright manufacturing consolidation
  - ✓ “US Eyes only” center of manufacturing



# Facility Expansion Objectives.....

- Relocate and combined current Littleton, MA separate building operations into a single, modern, facility
- Expand from current 57K Sf to an initial 63K Sf, with option for further additional expansion of 50K Sf
  - Expansion space to support:
    - New Surface Mount circuit card assembly equipment
    - New Environmental Stress Screening test chambers
    - Expanded manufacturing and engineering services
- Planned \$\$ Investments (2008-2009):
  - Facilities Renovations: \$2.0M
  - Capitol Equipment: \$2.5M



DEK Horizon Screen Printer



Assembleon Opal-Xii Placement



Assembleon Opal-Xii Placement



Assembleon MG1 Placement



BTU Pyramax Reflow Oven





## Curtiss Wright Employee Expansion

**Expansion to drive estimated 30 additional new employees that will be sourced from the local region:**

- **Engineering**
  - Design Engineers: 3
  - Technicians: 3
  
- **Manufacturing**
  - Skilled operators/assemblers: 15
  - Mfg. Engineers: 4
  - Managers: 1-2
  
- **Support**
  - Various: 3





## Curtiss Wright Expansion

- ✓ **Curtiss-Wright's preference is to stay local and retain and grow its current workforce**
- ✓ **We are in the “due diligence” phase with the 151 Taylor St, Littleton facility**
- ✓ **We look forward to working with the town of Littleton**