Leveraging COTS Hardware for VPX and Server Based Mil/Aero Applications

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Embedded Tech Trends
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Industry Drivers for Mil/Aero

COTS and MOTS Highly Desired


Avoid Vendor Lock in


Lower Development & Production Costs


Faster to Market


Long Term Supply

Open Standards Platforms are Growing

1% CAGR
- VME/VPX

9% CAGR
- xTCA

Source: IHS

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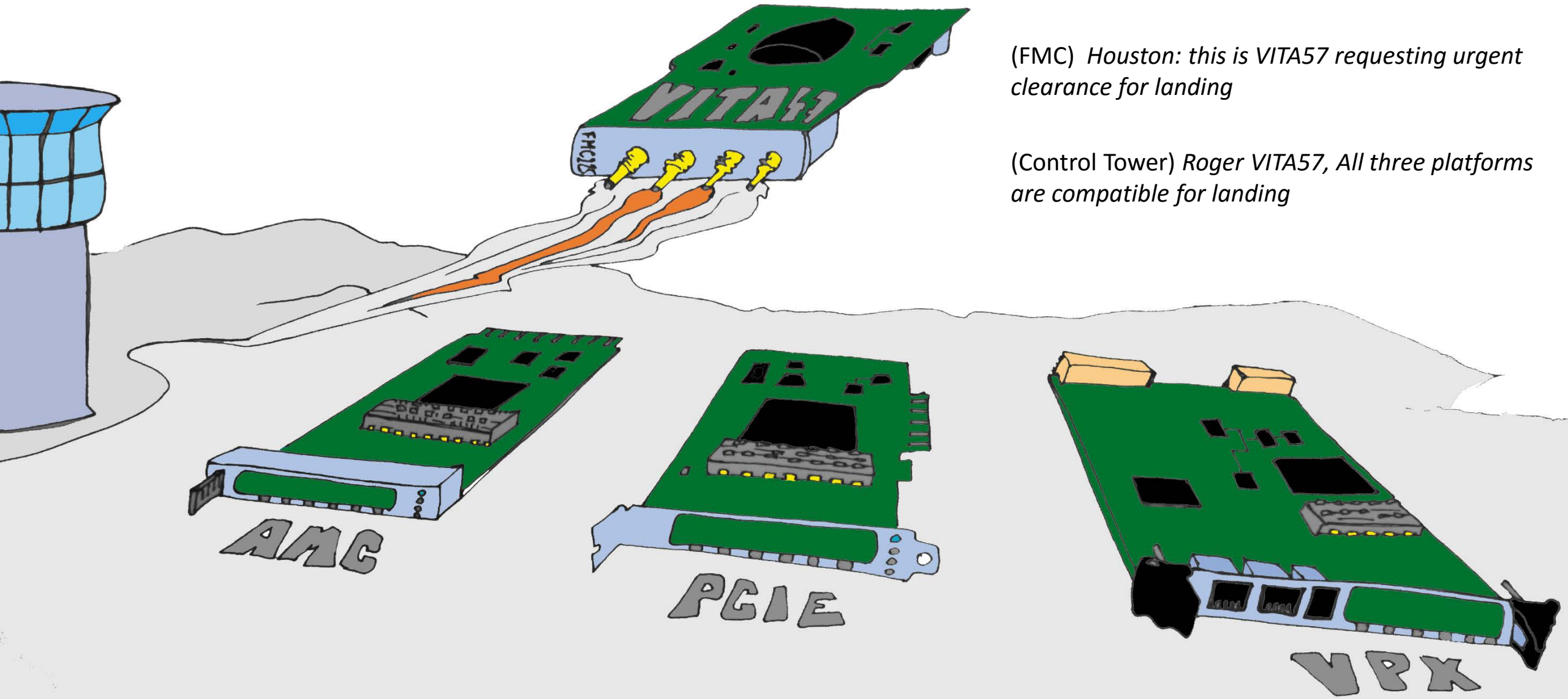
Trend 1 – FMC Widely Used for I/O



(FMC) *Houston: this is VITA57 requesting urgent clearance for landing*

(Control Tower) *Roger VITA57, All three platforms are compatible for landing*

Trend 2 – Rapid Silicon Innovation

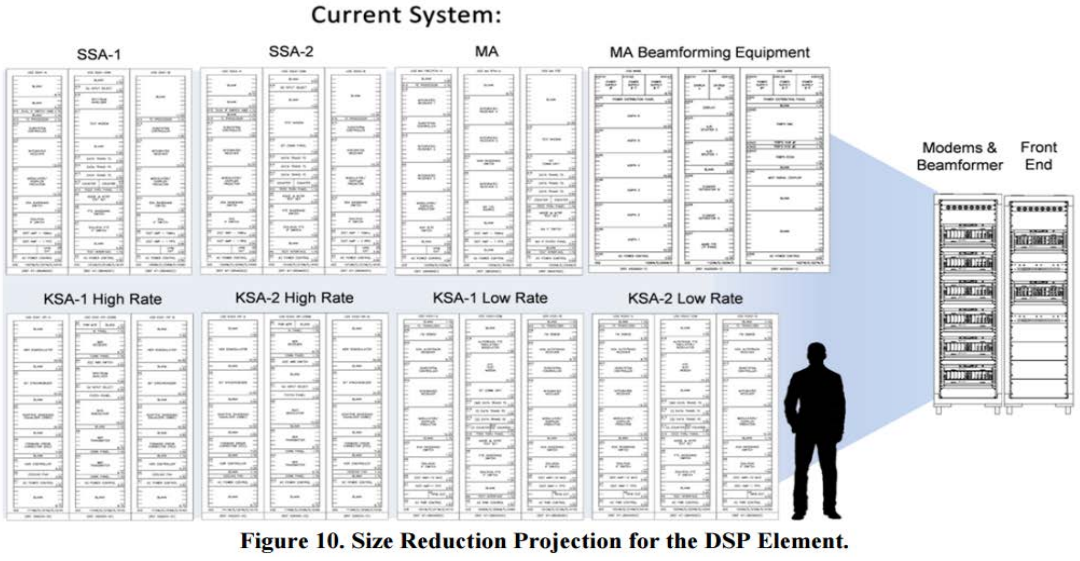


Figure 10. Size Reduction Projection for the DSP Element.

FPGA, ADC, DAC, SOC Advances are Shrinking Systems

- Creates failure for companies that cannot keep pace
- Larger Barriers for New Entrants in Data Acquisition Applications
  - Sampling at GSPS vs MSPS
- Driving Intelligence to the Edge

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Trend 3 – Shelf Management Features are Implemented

- Mil/Aero Applications Slow to Adopt
  - Fault Tolerance not required
  - Failover is Inderministic
- Example Features of Interest
  - Configuration Management
  - Cold Start
  - Battle Short

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Trend 4 –Tools Shorten Development Times

Digitizer

FPGA Processing
+
DMA Engine

Driver
+
EPICS / Qt

MATLAB SIMULINK

EPICS

NATIONAL INSTRUMENTS LabVIEW

AMBA Interconnect Standards from ARM

- ***Application Development Prior to Hardware Delivery.***
- ***Port across different form factors: Commercial to Rugged***

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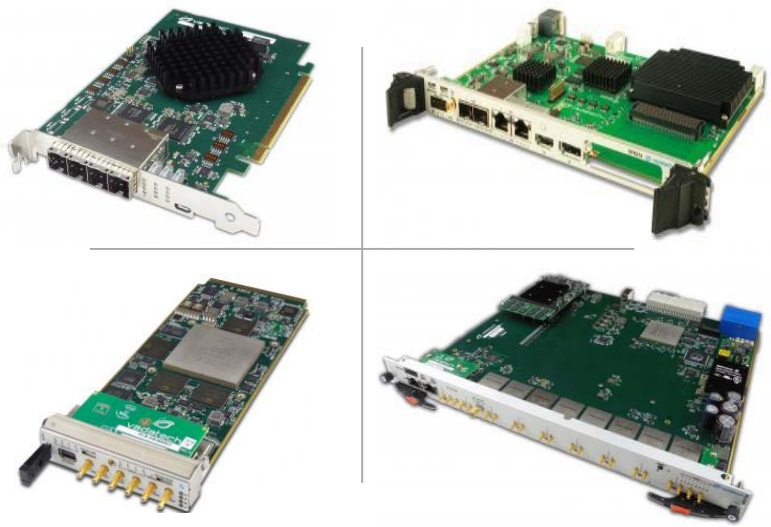
Trend 5 – Leveraging Intellectual Property

- VadaTech Ports IP across PCIe, xTCA, VPX standards
- Hardware choice influenced by environmental factors, install history, and costs
  - e.g. Xilinx V7 in PCIe, VPX, AMC, ATCA



"Houston: We're going to need a bigger boat!"

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