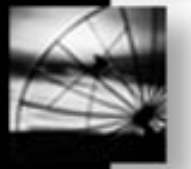
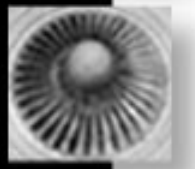
Visual Solutions
INCORPORATED



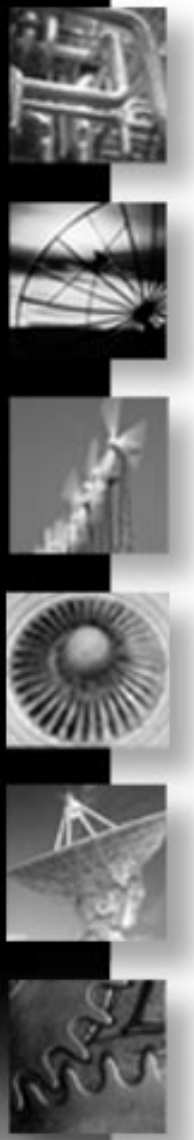
VisSim/CommDSP

Rapid Prototyping Software: Communication System to TI DSPs

Arun Mulpur, Ph.D.,
Director of Product Engineering and Technical Services

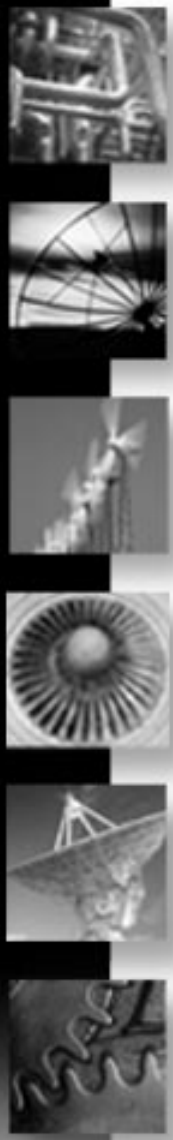
Visual Solutions, Inc.
www.vissim.com

Modeling the Future



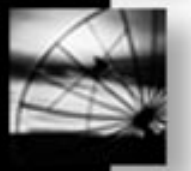
Outline

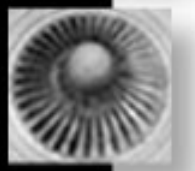
- About VSI
- System to DSP
- Markets and Applications
- Control System to TI DSP: DEMO
- Communication System to TI DSP: DEMO



About VSI

- Founded in 1989 by Peter Darnell
- VisSim developed in collaboration with United Technologies (FCS 1991)
- Over 12,500 licenses worldwide
- Growing & profitable
- Entered OEM Agreement with I-Logix 1997
- 1999 Readers' Choice Award: Control Magazine



Mission & Strategy

Provide easy-to-use, powerful & affordable

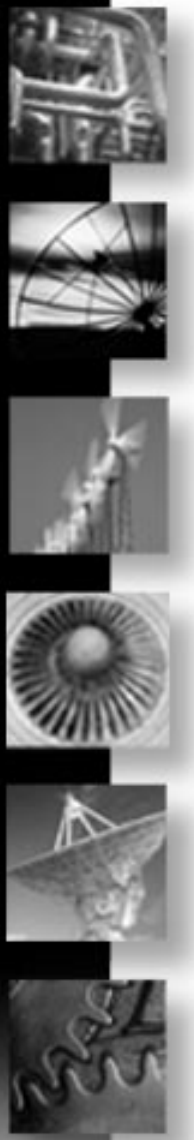
- Modeling, Simulation & Control

- Communication System Design

Rapid Prototyping Software Solutions for...

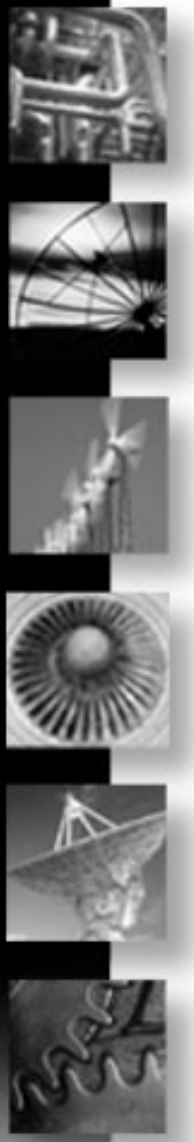
End Users

Technology Partners (OEM's)
System Design (I-Logix)
Entry Level M&S Tools
System to DSP/RTOS (TI)
Communication System Design



System to DSP: Rapid Prototyping Software

- Ease-of-use
- Quality and efficiency of C-Code (e.g., small footprint)
- Level of procedure automation
- Level of hardware integration
- Algorithm packaging and delivery
- Support of target DSP / RTOS



System to DSP: VisSim

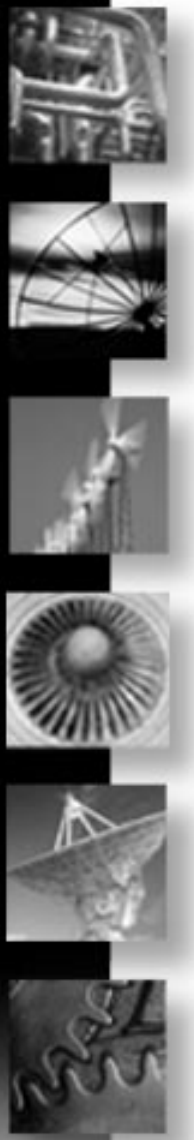
Model & Simulate the System

Automatic C Code Generation

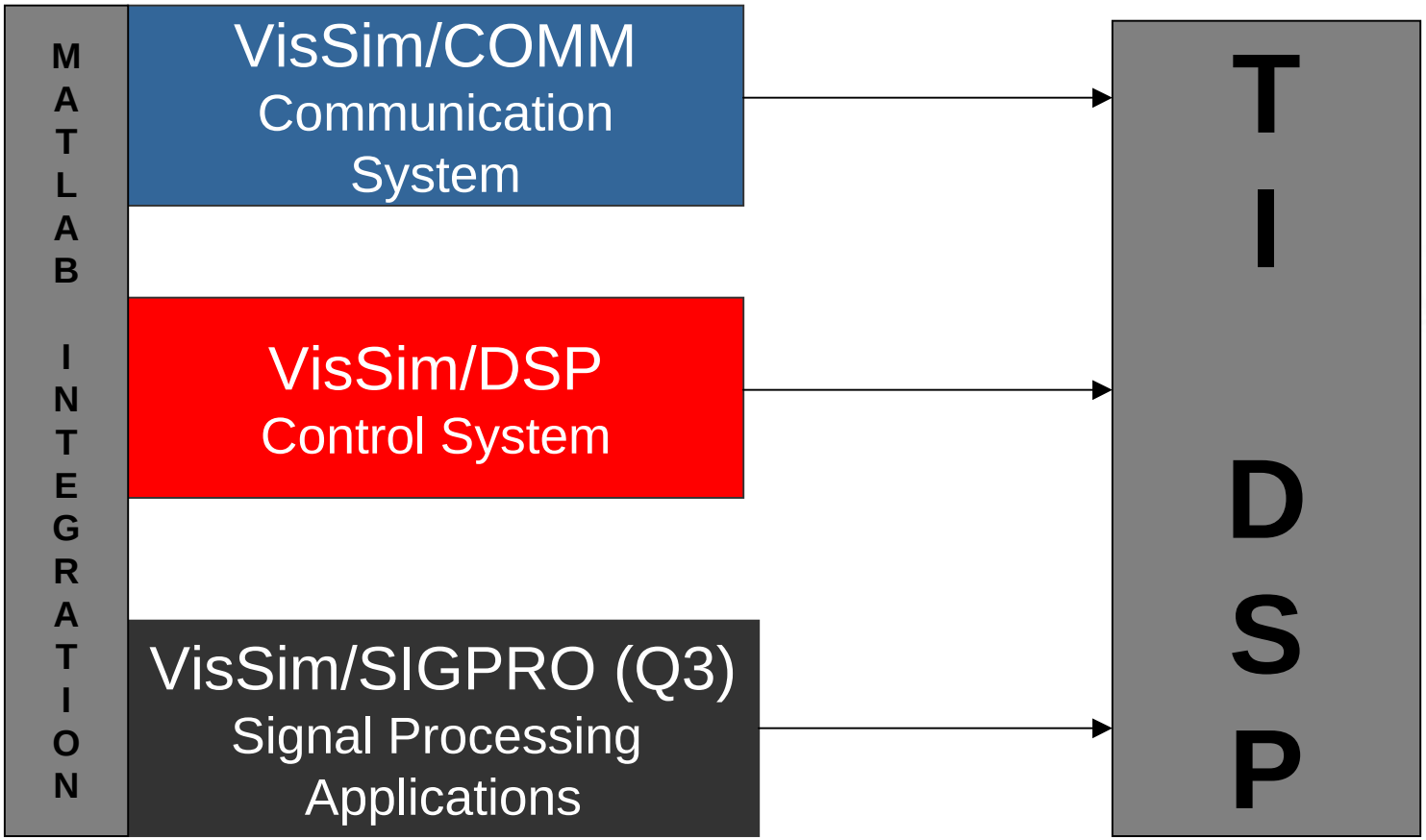
Automatically
Compile - Link - Download to DSP

Debug - Validate & Optimize

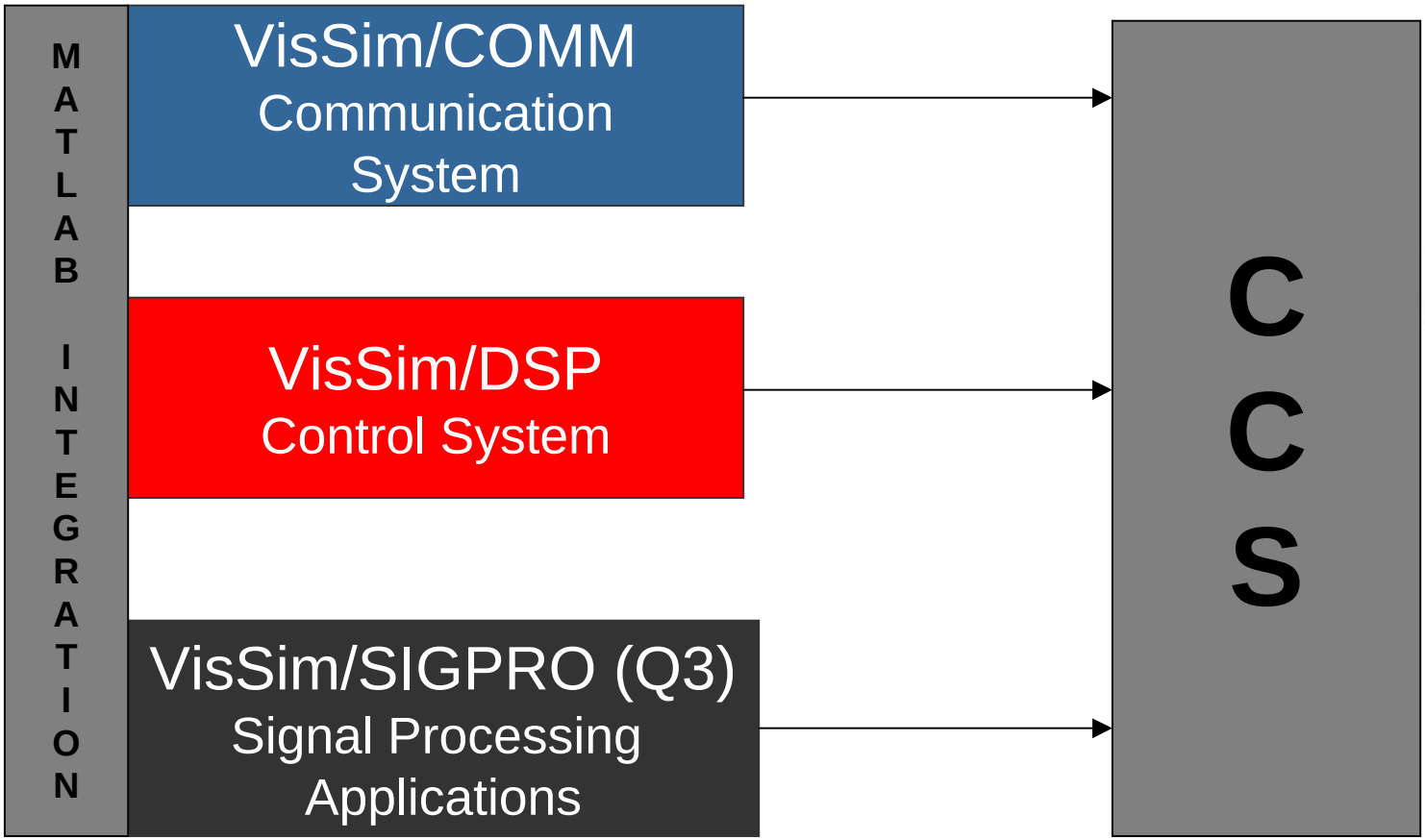
= Validated Code

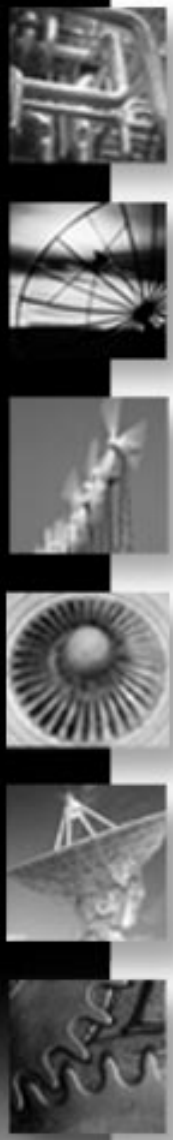


System to DSP:
VisSim ⇔ TI DSP Integration



System to DSP:
VisSim ⇔ Code Composer Studio

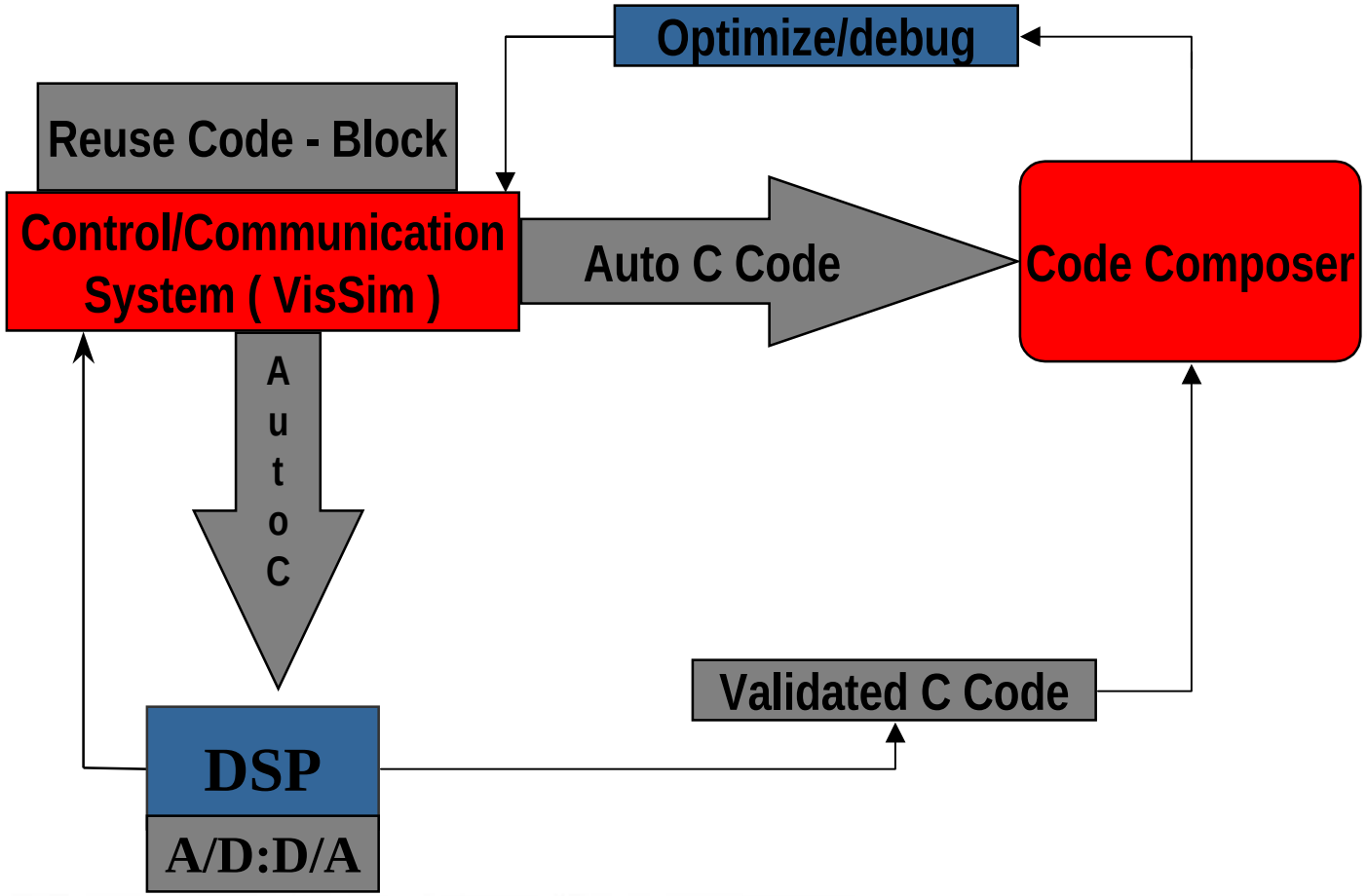




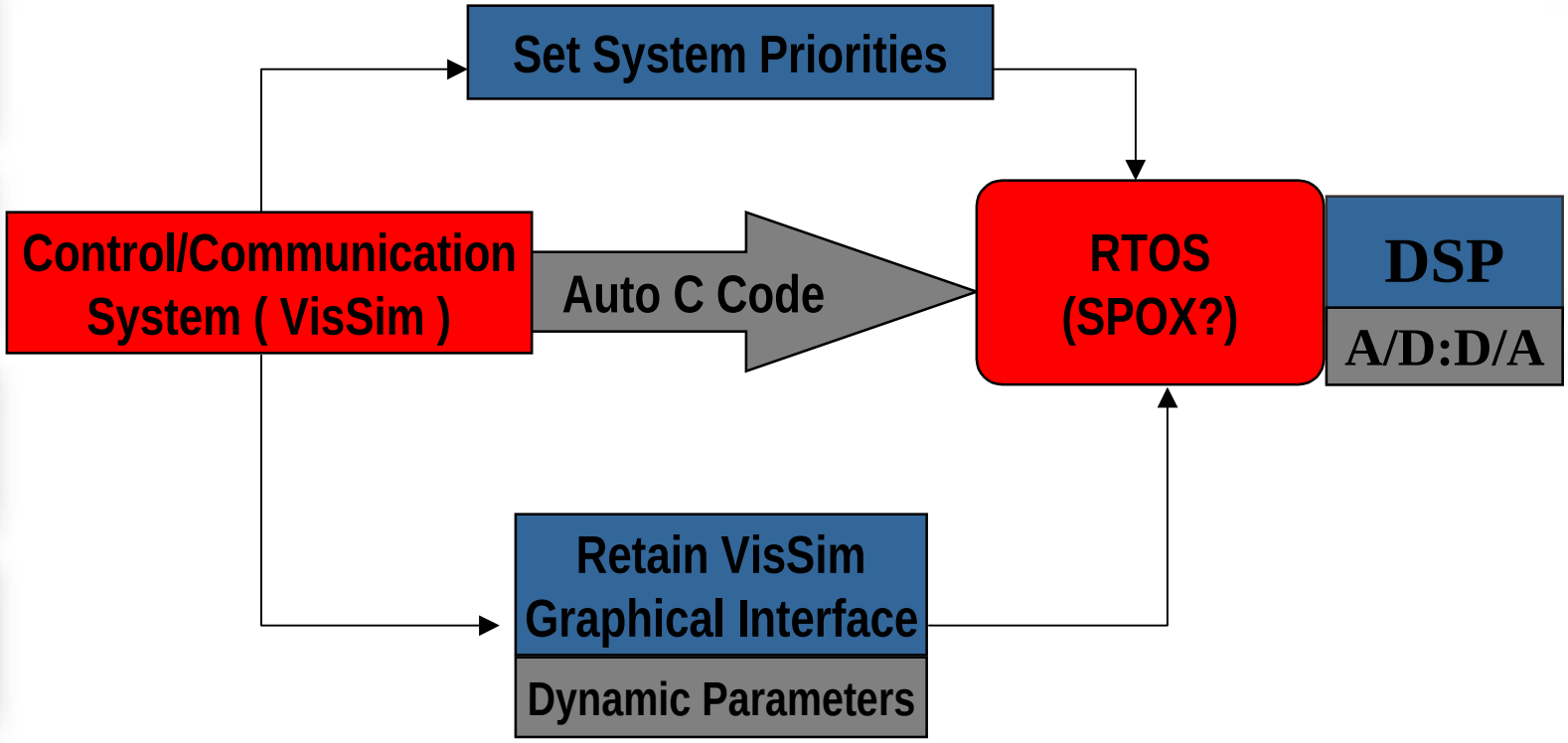
System to DSP:
VisSim ⇔ Code Composer Studio

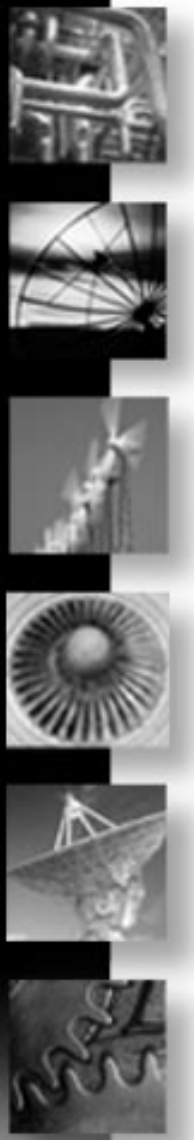
- The DSP solution for the customer is not just the DSP hardware or the software tools but an integrated hardware-software solution (the system)
- Code Composer is the IDE. VisSim & VisSim/Comm provide the System to Code Composer Studio “funnel”

System to DSP:
VisSim ⇔ Code Composer Studio



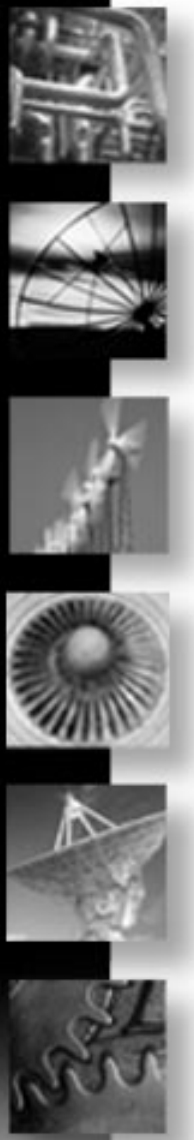
System to DSP: VisSim ⇔ RTOS





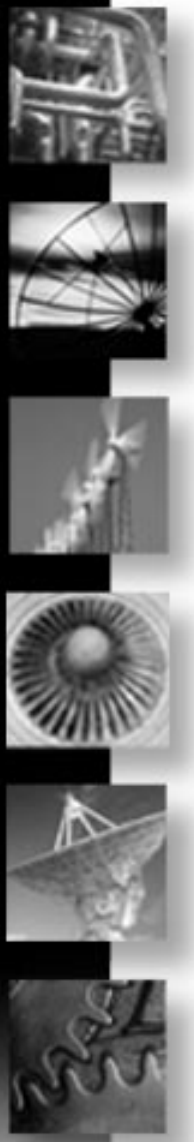
System to DSP: Algorithm Packaging & Delivery Solution

- MatLab Integration
  - Allows seamless integration between VisSim and MatLab
  - MatLab READ & WRITE blocks
  - IMPORT .m or .MAT files - data or system specifications
  - MatLab SCRIPTING
  - VisSim/MatLab Compiler (Product Option)
- DLL Wizard
  - Automatic compilation of user-written C-Code into custom VisSim blocks from MS VC/C++ v.5.0+
- VisSim Viewer
  - Free Run-Time version of VisSim



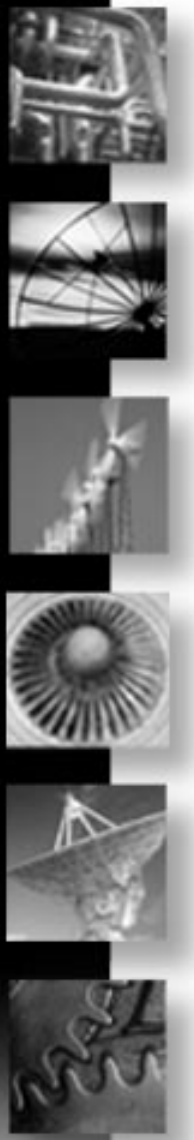
Markets & Applications

CSD	COMM
HVAC	Satellite
Motion Control	Cellular / PCS
Process Control	Wireless
6DOF - Aerospace	Modem Design
Transportation	General
Power & Gas	System Level RF Design
Turbine	
GENERAL MODELING & SIMULATION	SIGNAL PROCESSING

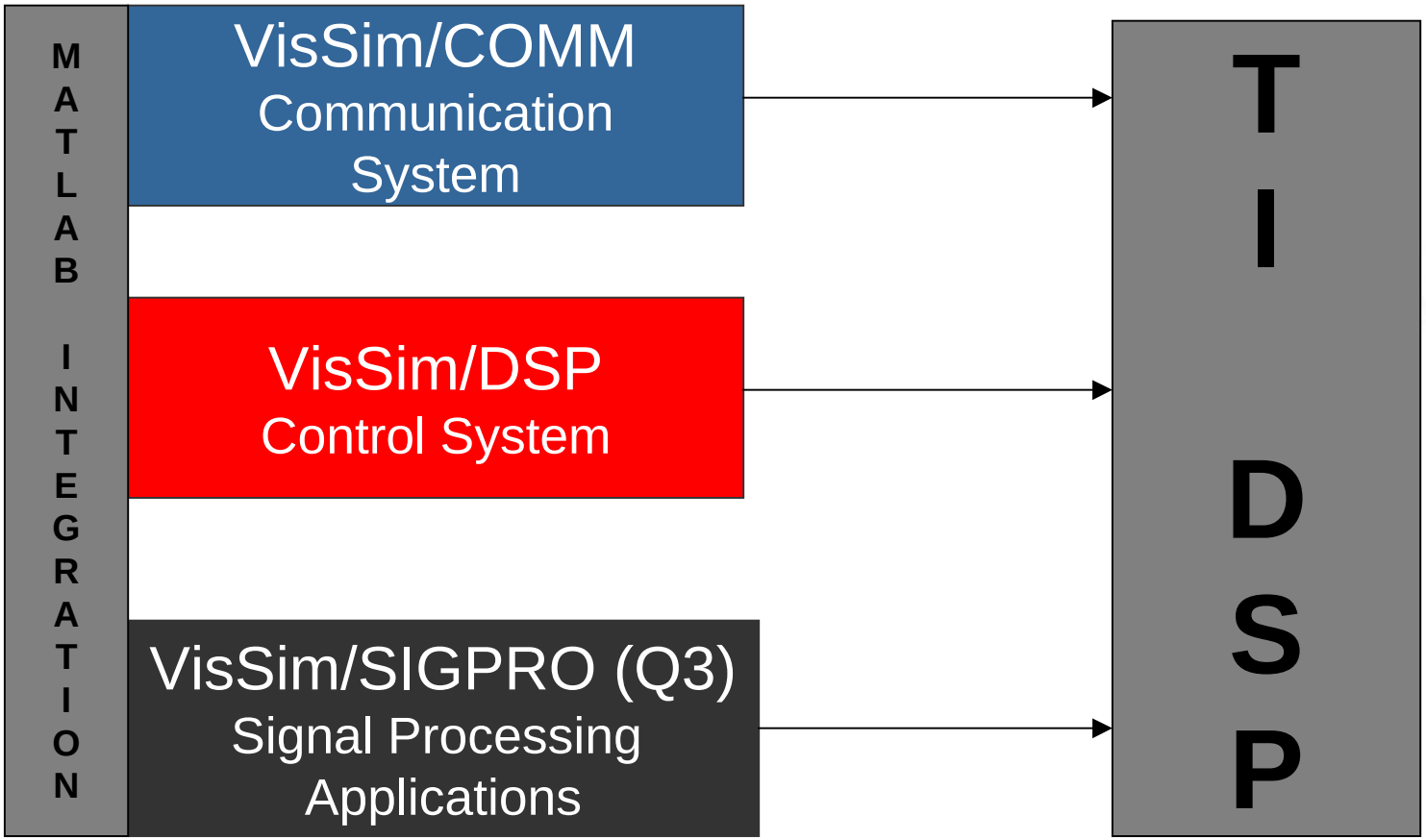


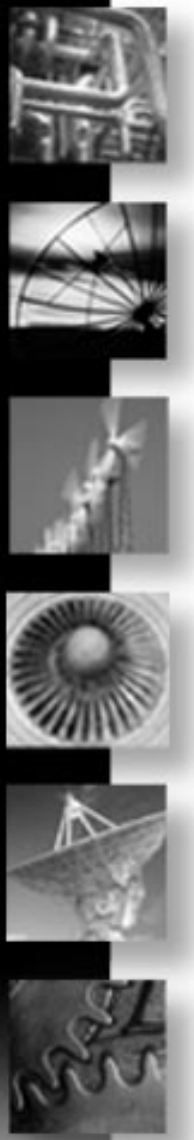
Markets & Applications: Product Benefits

- **Faster design time, fewer design iterations and fewer prototypes = FASTER TIME to MARKET**
- **Simulations are easy & powerful = Engineers simulate more= PRODUCT MEETS DESIGN INTENT**
- **Self-documenting designs, ease of integration of existing algorithms, automatic code generation = LOWER DESIGN & PROTOTYPE COSTS - INHERENT REUSE of IP**



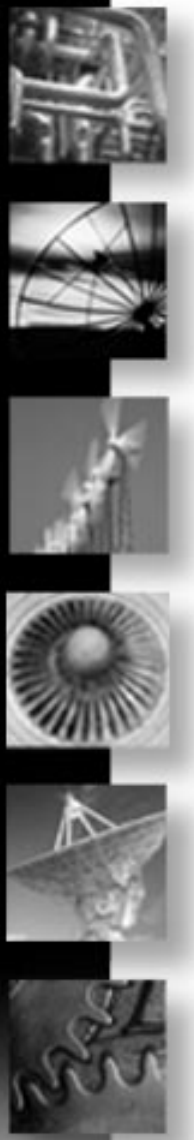
Markets and Applications:
VisSim ⇔ TI DSP Integration





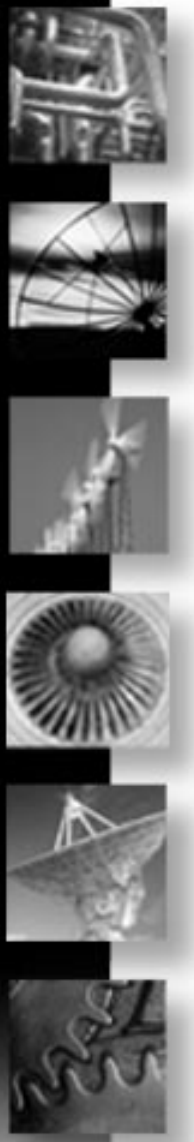
Markets and Applications: VisSim/DSP @ HR Textron

- Rapid prototyping of hydraulic actuator systems on military aircraft
- Four control loops simultaneously on a C31 (PC31 from Innovative Integration)
- Automatic support of Analog / Digital I/O and VisSim/DSP interface critical for success
- Did NOT modify a single line of generated code



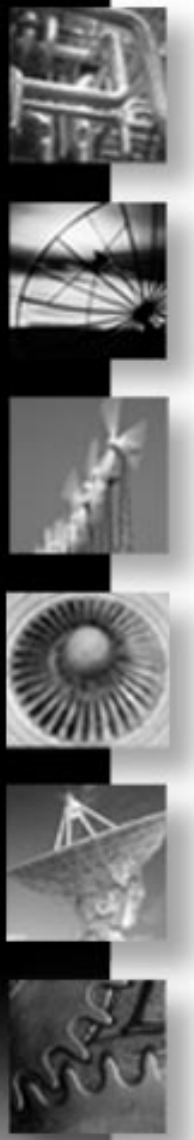
Markets and Applications: VisSim/DSP @ GEC Marconi (UK)

- Advanced engine controls on the European Joint Strike Fighter
- Engine thrust vectoring control in the TBSN (Three Bearing Swivel Nozzle) on a C32 (PC32 from Innovative Integration)
- Ability to model complex systems, ease-of-use, tight integration with target DSP critical
- Did NOT modify a single line of generated code



Markets and Applications: VisSim/SIGPRO @ LMT (Sweden)

- Lidköping Machine Tools (LMT)
  - an SKF company
  - world's largest precision grinding machines supplier
- Design and prototype advanced closed-loop adaptive filters and control activation modules
- Support of advanced DSP functions as blocks; extreme ease-of-use (prototype in 3 days!)
- Did NOT modify a single line of generated code



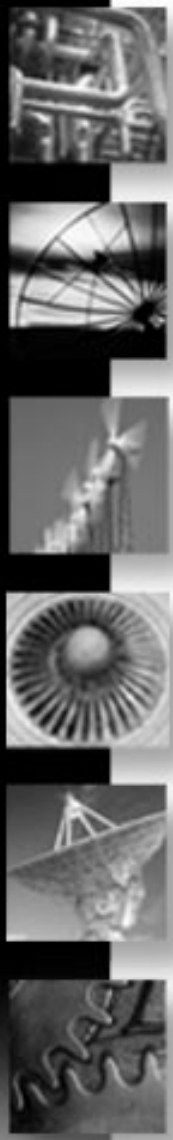
Markets and Applications: VisSim/Comm @ Ericsson (USA)

- Communication System Design: Ericsson

"Using VisSim/Comm, we designed a new modulation synthesizer much faster than if we had followed the conventional hardware prototype cycle for proof-of-concept.

We were able to validate our approach in a matter of days as opposed to the several weeks required to design, assemble and test a breadboard."

Charles Gore, R & D Engineer



Communication System to DSP: VisSim/CommDSP ⇔ TI DSP

- DEMO