



Status of the Vector, Signal, and Image Processing Library (VSIPL)

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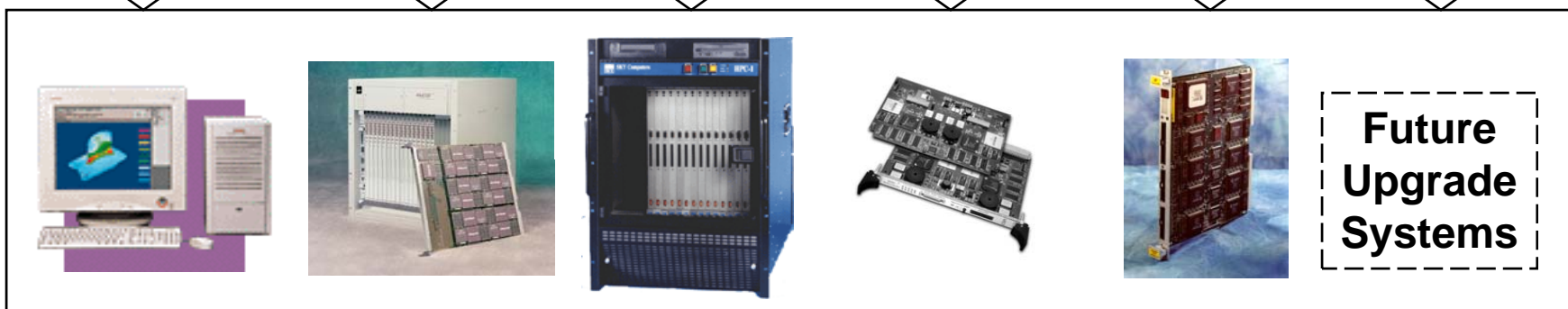
VSIPL Goals

Vector Signal
Processing Application

Matrix Signal
Processing Application

Image
Processing Application

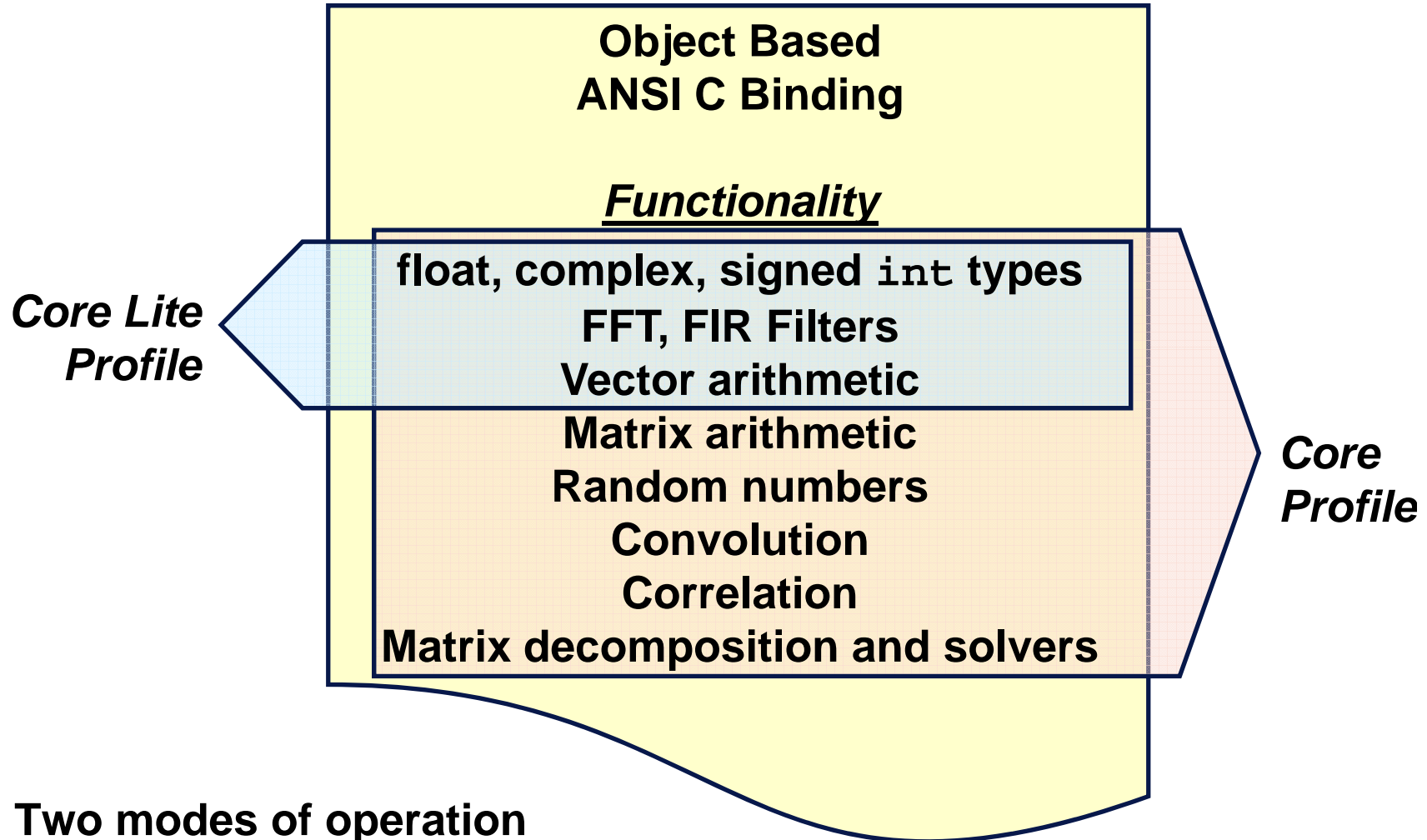
Vector, Signal, and Image Processing Library



- **Portable to workstations, embedded systems, FPGAs**
- **Applicable to simple and complex applications**
- **Easier upgrade cycle**
- **Reduced development time and cost**



VSIPL API Properties



- Two modes of operation
 - Development mode with extensive error checking
 - Performance mode with minimal error checking



VSIP L Forum Products

- **Standard API for Vector/Signal Processing**
 - Version 1.01 released March 6, 2001
 - minor corrections and updates to VSIP L 1.0
 - Version 1.1 is under development
- **TASP VSIP L demonstration library**
 - Developed by Randy Judd of USN SSC-SD
 - ANSI C production mode implementation
 - Core and Core lite profiles
 - “Core Plus” implementation including additional functionality
- **Portable C Test Suite**
 - Developed by Dan Campbell of GTRI
 - Tests compliance with Core Lite Profile of VSIP L 1.01 API
 - Does not test performance (speed or memory)

All may be downloaded from VSIP L web site
<<http://www.vsipl.org>>









Changes in VSIP L 1.1

- **Correction of various errata**
- **New functions**
 - **Singular value decomposition, $A = USV^H$**
 - includes functionality to extract subspaces corresponding to the highest or lowest singular values
 - supports pre- and post multiplication of a matrix by U or V
 - no solver, use with existing matrix multiplication routines
 - **Windowed FFT**
 - Defines window as part of the FFT object
 - Integrate data taper and FFT calculation
 - **New I/O functions to**
 - Operate on VSIP L vendor-dependent objects (e.g., FFT, QR, LUD)
 - differ from block objects because the data associated with them is implementation-dependent
 - allows objects to be communicated, saved to files, etc.



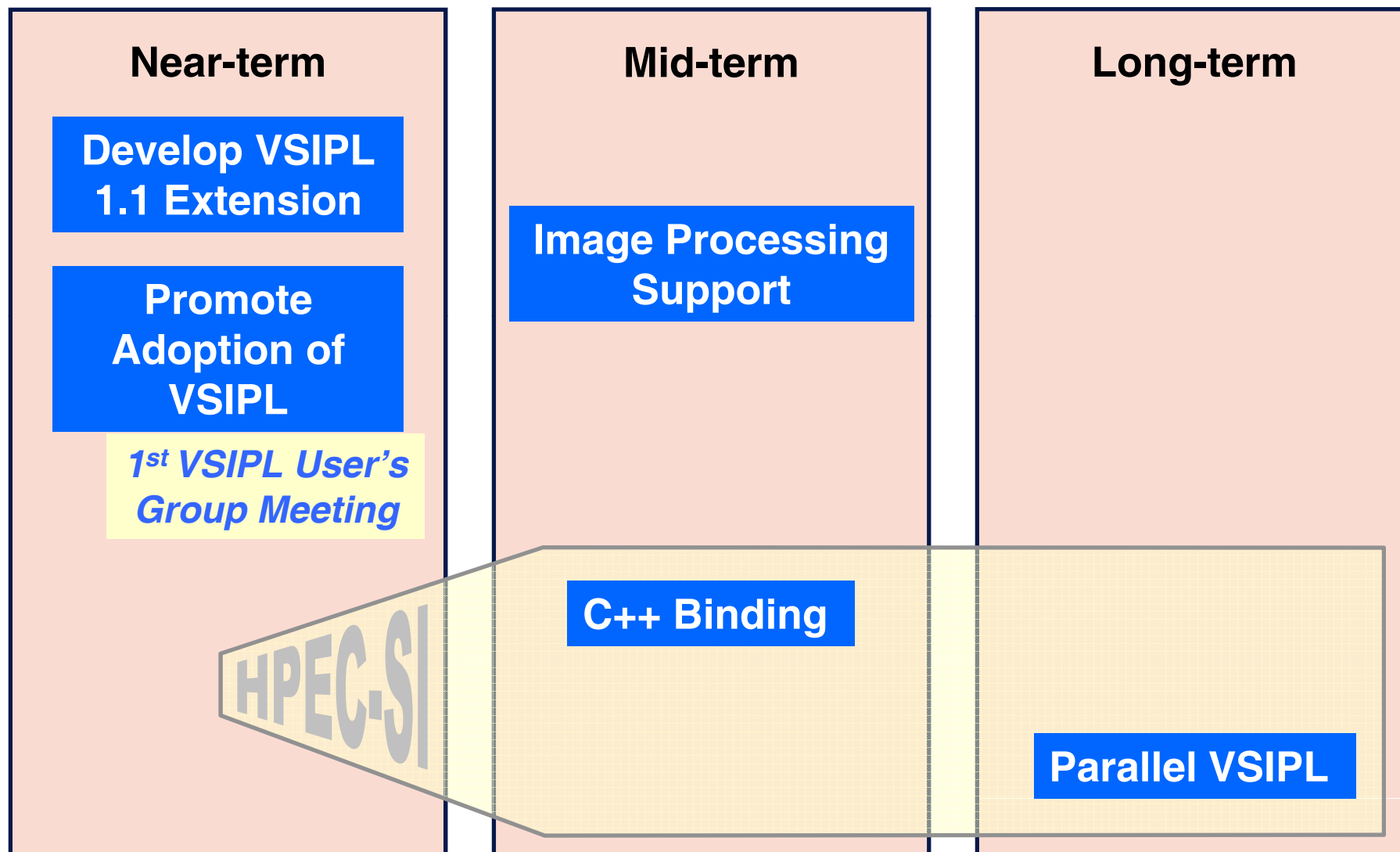
Commercial Implementations

<i>Available Now</i>		
	<i>Vendor</i>	<i>Implementation*</i>
	CSPI	Core Lite
	DNA Computing Solutions	Core
	MCCI Autocoding Toolset	Core Lite
	Mercury Computer Systems	Core Lite + some 2D
	MPI Software Technology, Inc. <i>Licensed by Thales, Radstone, Concurrent; Supports G4 under VxWorks, LynxOS, Linux, MacOS, Linux PPC, and Windows</i>	Core
	Sky Computers	“Core Plus”, multiple data types
<i>In Development</i>		
Annapolis MicroSystems' WildStar Boards		
MathWorks considering VSIP L target for Simulink		

** Most vendors also accommodate specific customer requirements*



VSIP L Development Plans





VSIPL User's Group Meeting

- Supported in part by USN PMS411
- Wednesday Feb. 27 - Thursday Feb. 28, 2002 at Georgia Tech
- 1.5 day introduction to VSIPL, its use, and available resources
 - History, design principles and concepts, interfacing
 - Functional content and profiles
 - TASP VSIPL Reference implementation, Test Suite
 - Performance
 - Commercial implementations
 - Future development plans
- Attendees receive
 - Hard copy charts
 - CD of charts, API and related documents, reference implementation and test suite, links to vendors
- Register soon at <http://www.vsipl.org>



Summary

- VSIP L 1.01 is available
- VSIP L 1.1 is under active development
- Implementations are here
- The Forum is continuing to support and enhance VSIP L
 - image processing functionality being investigated
 - cooperating with HPEC-SI on C++ and Parallel VSIP L
- First VSIP L User's Group Meeting February 27-28, 2002
- Actively soliciting examples and "field reports"
- Next VSIP L Forum Meeting Feb. 5, 2002; location TBD



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