PolyCore Software

Simplifying Multicore

Virtual Development Platform for Many-MultiCore Applications

By

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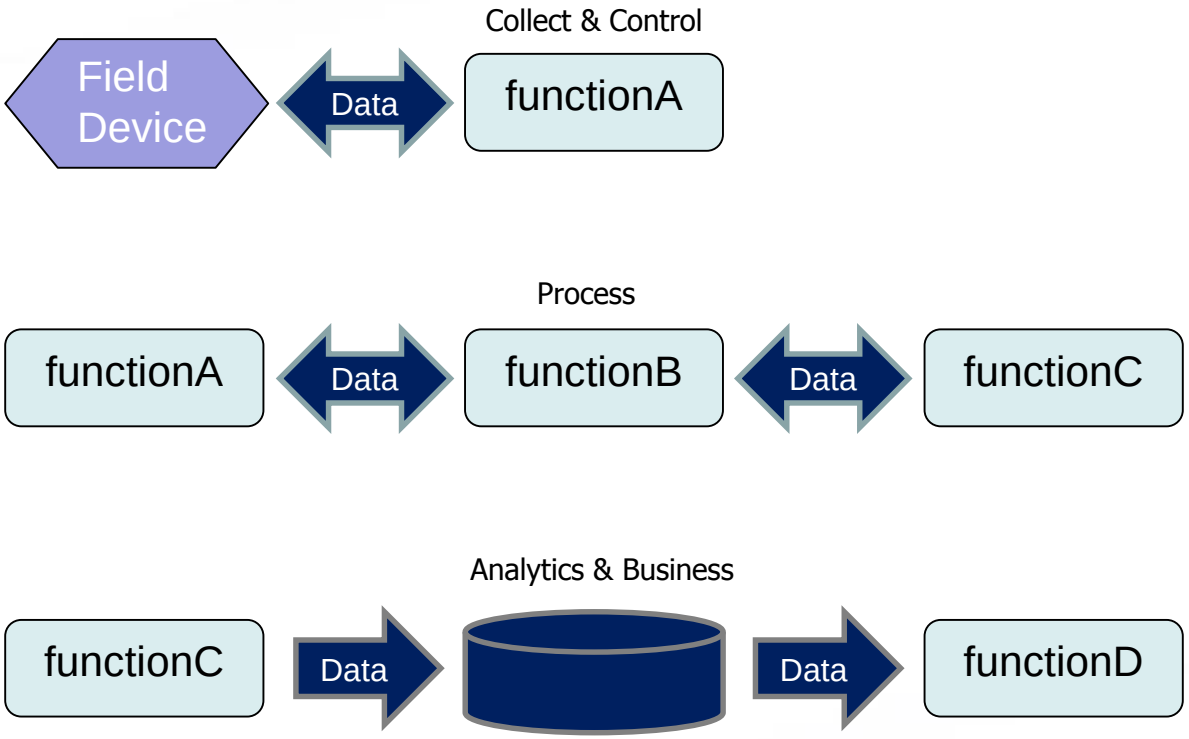
Data Sharing

Heart of Computing



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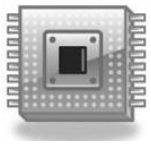
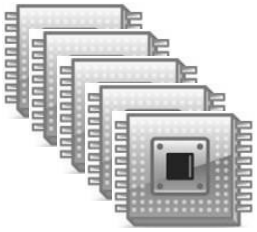
Data Sharing

Distributing the Load

Single Core

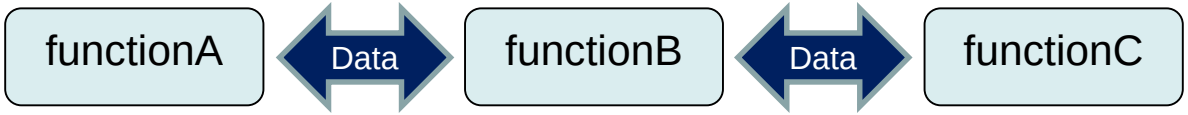


Multi-Core



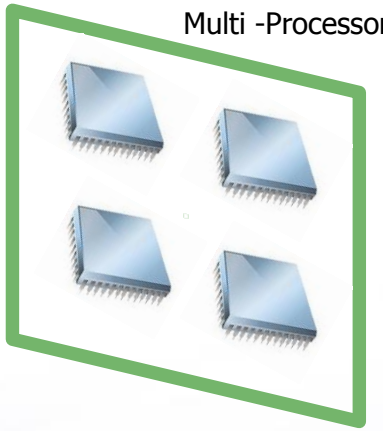
Microcontroller
General Purpose Computer
DSP
FPGA
Special Function

Process

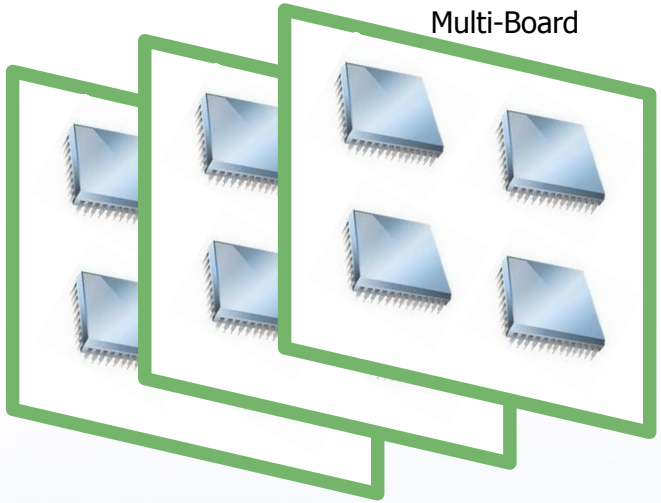


Single Processor

Multi -Processor



Multi-Board



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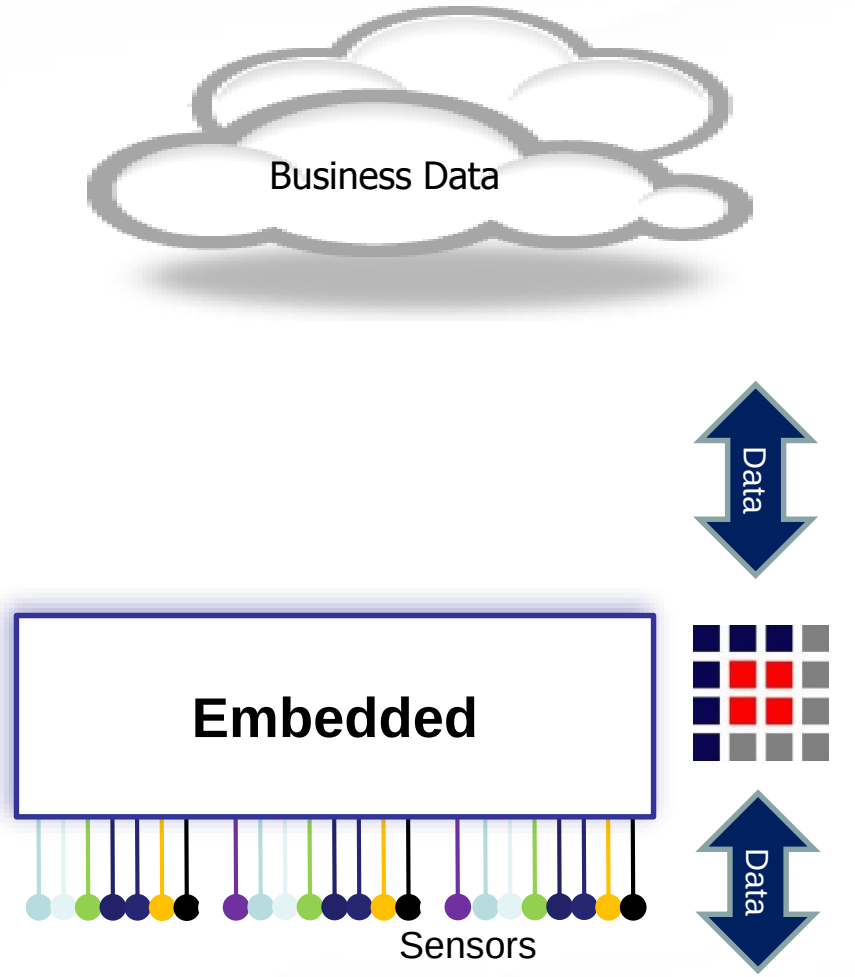
IoT: Data Sharing

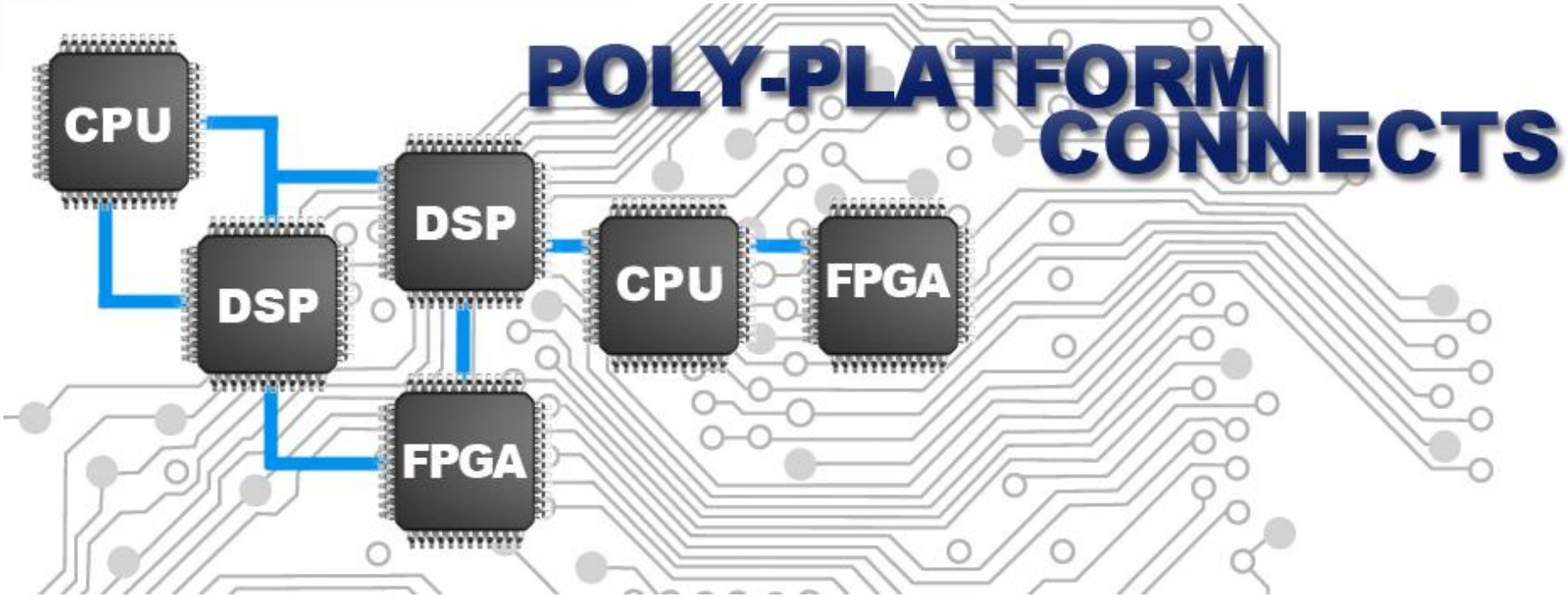


Poly-Platform

Unifies Communication:

- Normalizes Data Sharing
- Same API to any destination
  - MCAPI
  - Application Portability
- Data Integrity
- Support for:
  - Core Type
  - OSes
  - Transports

PolyCore Software Connects Applications



Many Multi-(s)

- Cores per chip/board/system
- Accelerators
- Operating Systems (Linux, Windows, RTOS)
- Transports (on-chip, wire)
- Memory Architectures

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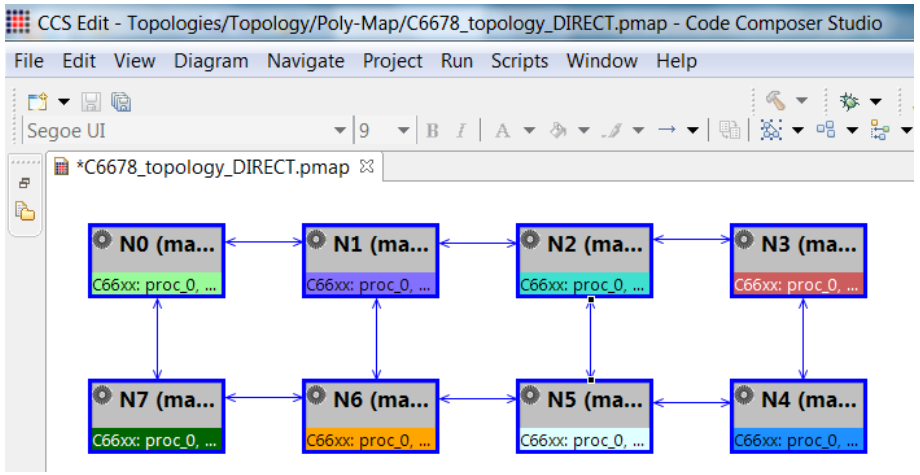
Poly-Platform

Productivity Development Tools and Runtime for data sharing and synchronization

- Message Passing
  - Unlimited Scalability
  - Synchronizing
- Standards
  - MCAPI support
  - Eclipse
- Virtualizes Platform
  - SMP and AMP
  - Heterogeneous and Homogenous
  - CPU, OS, Transports, Memory
  - Hardware Accelerators
- Code generated from Poly-Maps



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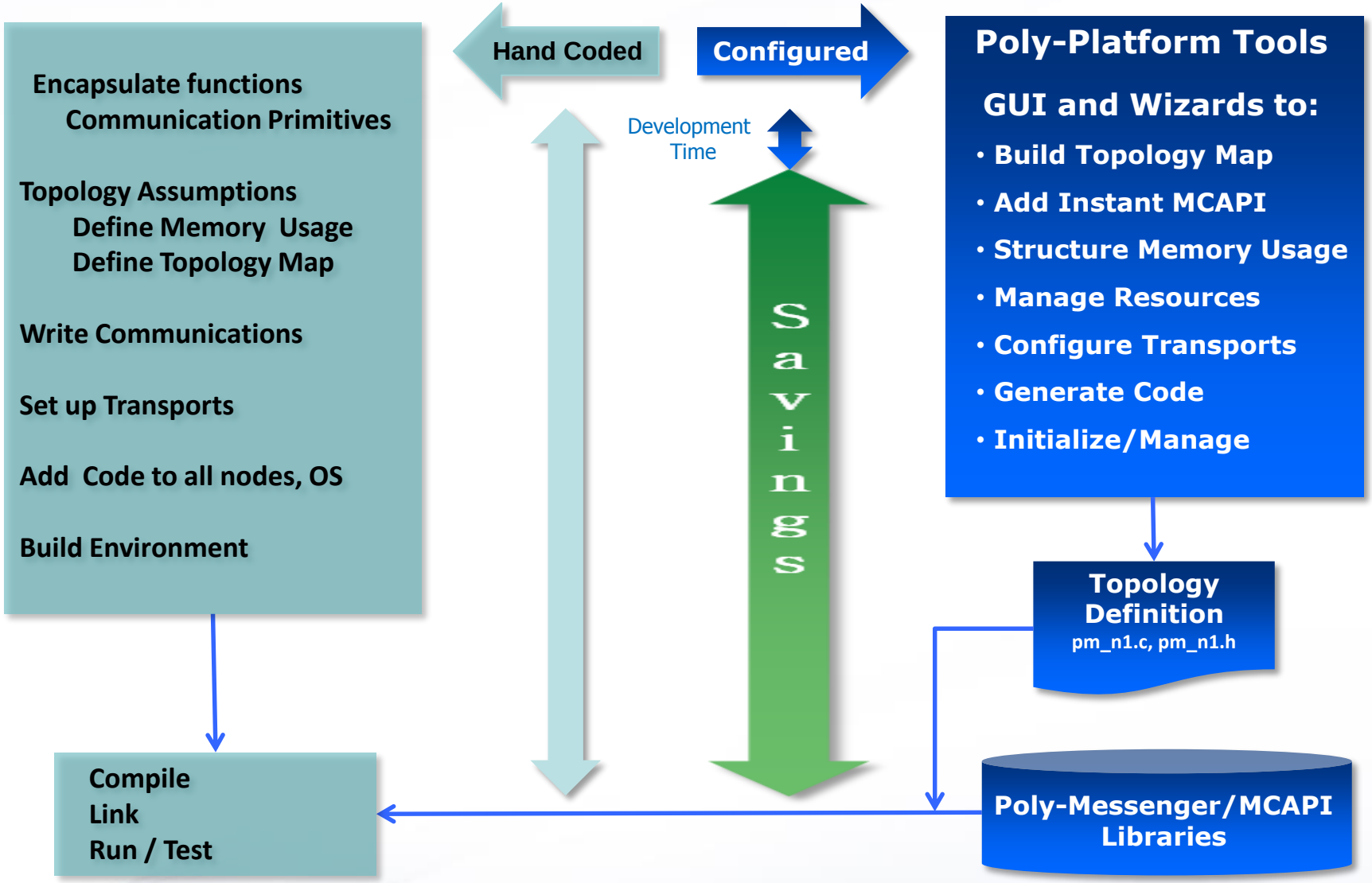
Poly-Platform™ Programming Model Benefit



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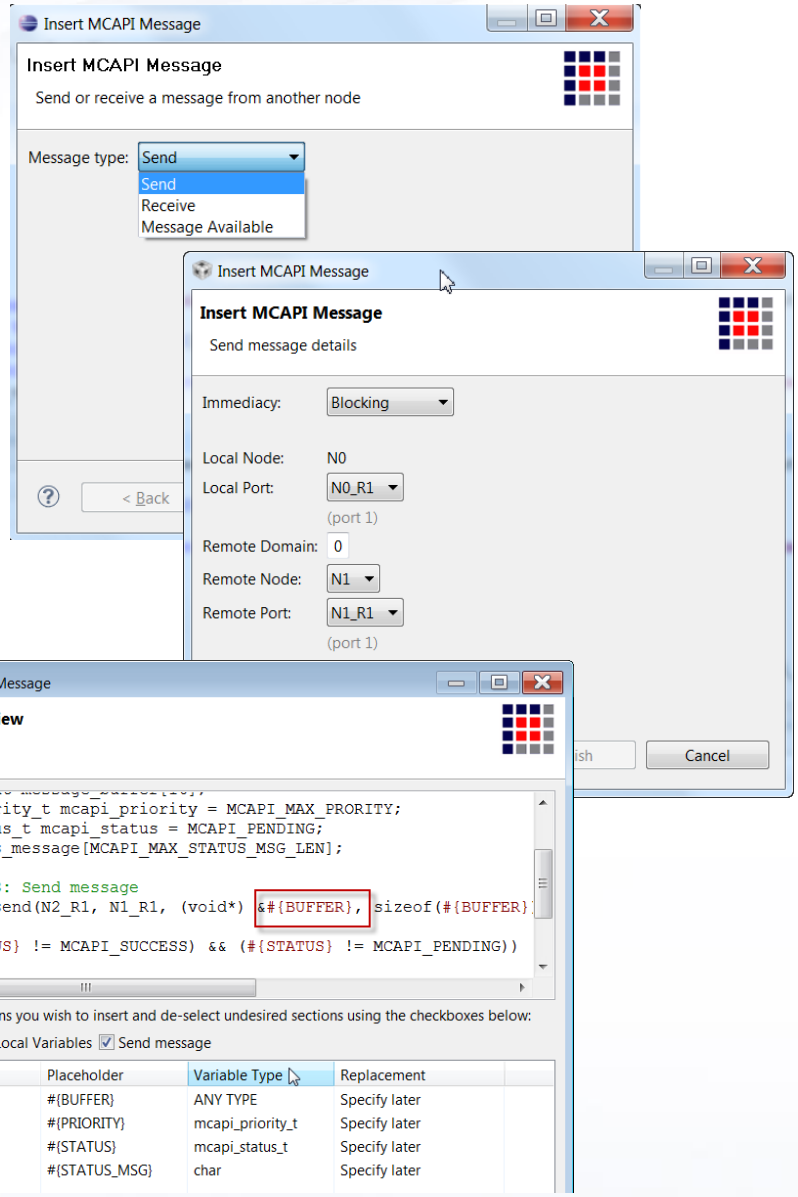
Poly-Platform: Add MCAPI Primitives

- Add MCAPI to Application
- Guides Developer w/ Wizards
  - Little to no MCAPI knowledge
  - MCAPI code Template
  - Insert MCAPI calls into the application
  - All MCAPI functions are available
- Improves Development Time
- Improves Code Quality
  - Uses Poly-Maps
  - Known Nodes
  - Validates Types



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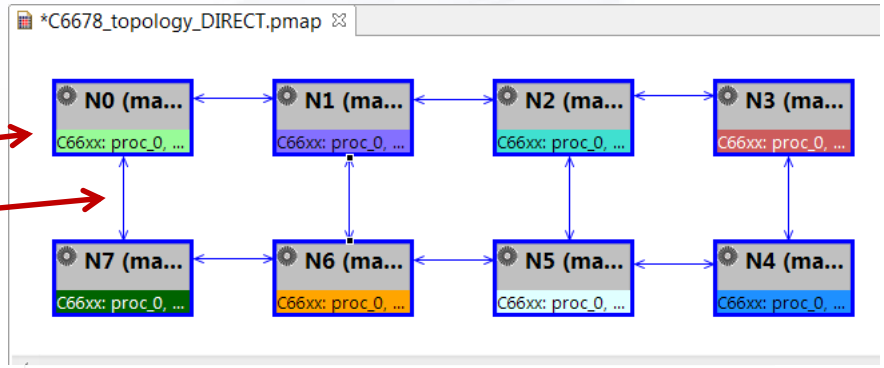
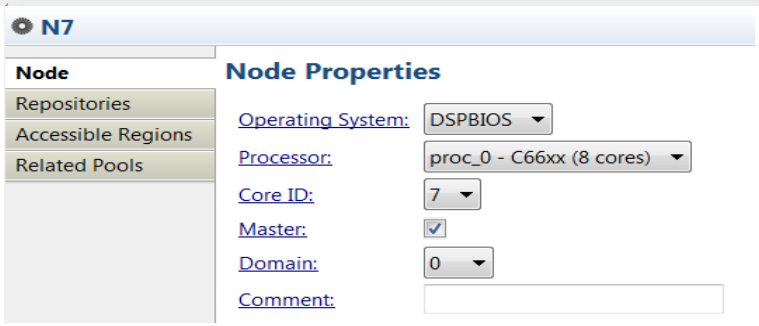
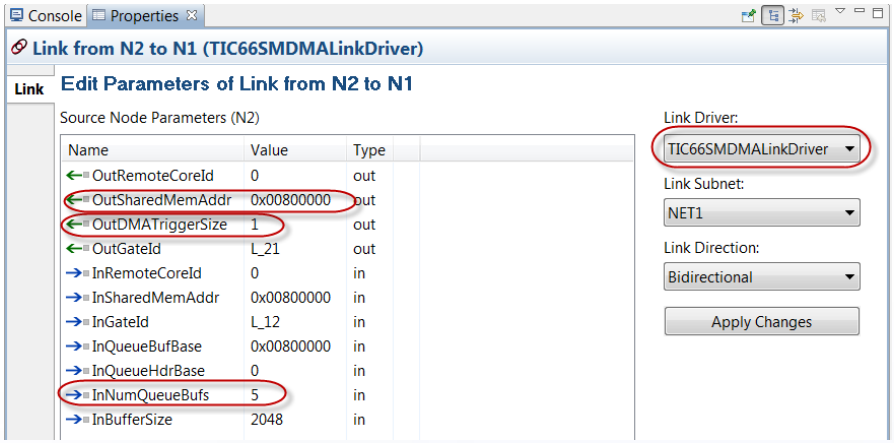
Poly-Platform: Define/Configure Topology

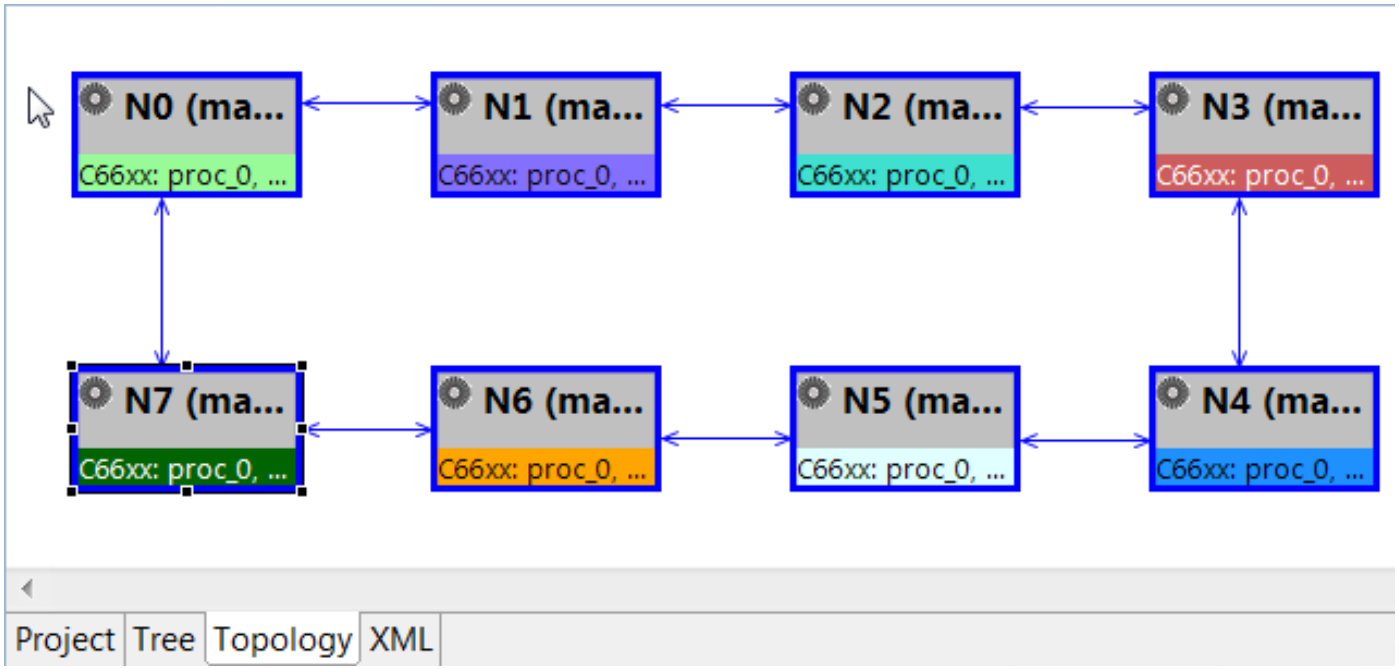
- Configure vs. Program
  - Draw
    - Nodes
    - Transports
  - Define Node
    - Properties
      - Processor
      - Core #
      - Operating System
    - Transport to use
      - Shared Memory/DMA
      - SRIO
      - TCP/IP
      - Infiniband
      - Serial/USB
      - Other
- Quickly Define & Try





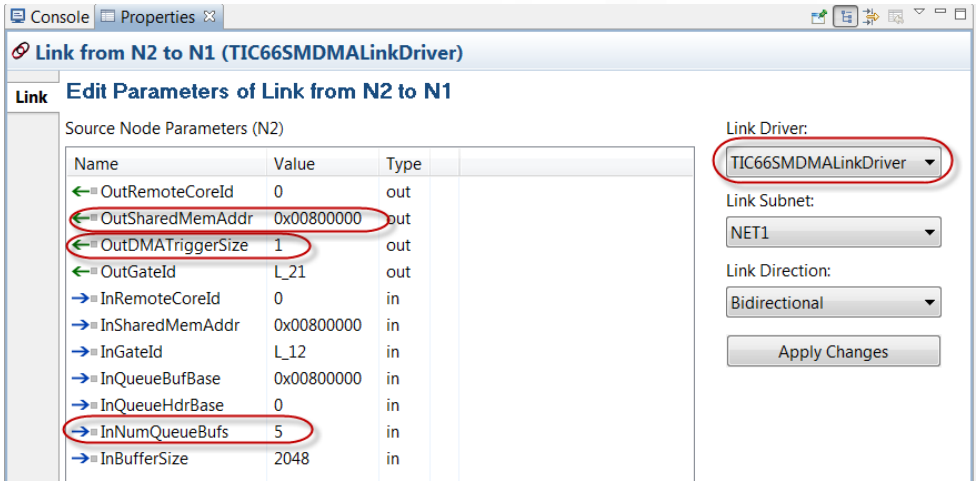


Map Application to Platform

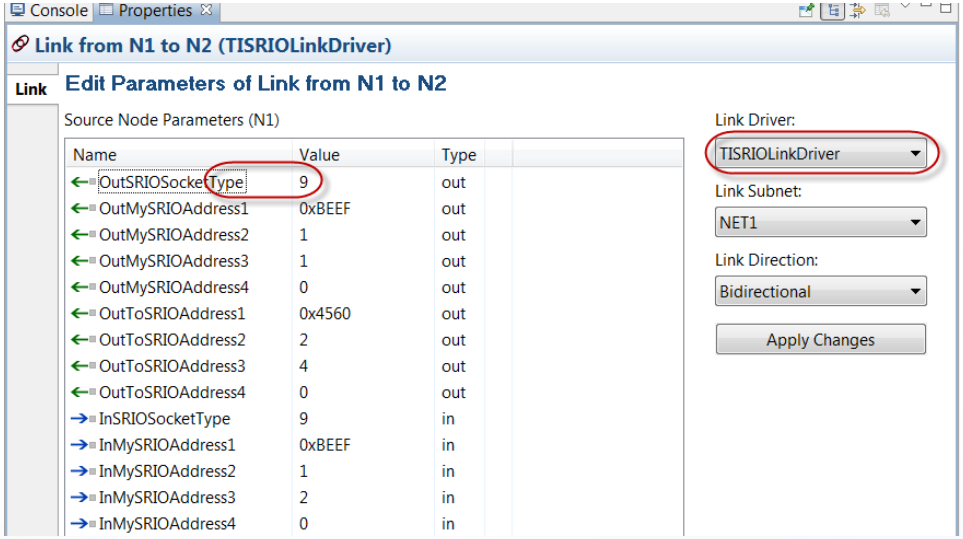


Configure Transports

- Shared Memory – DMA support



- sRIO



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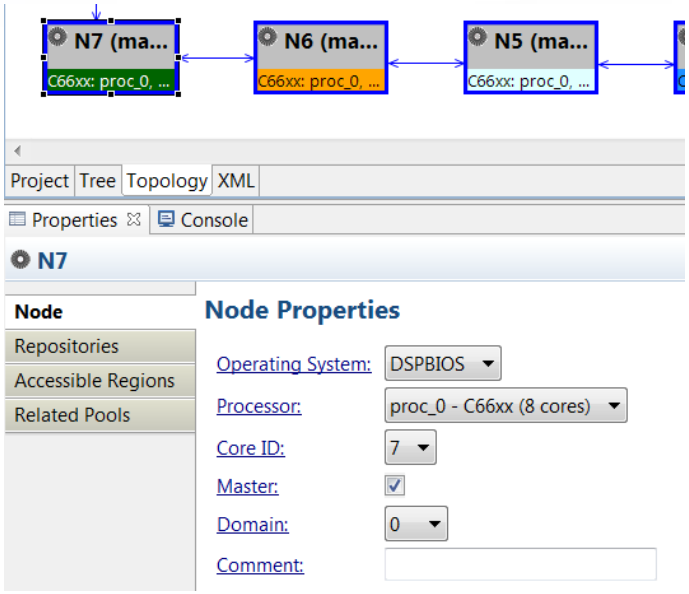
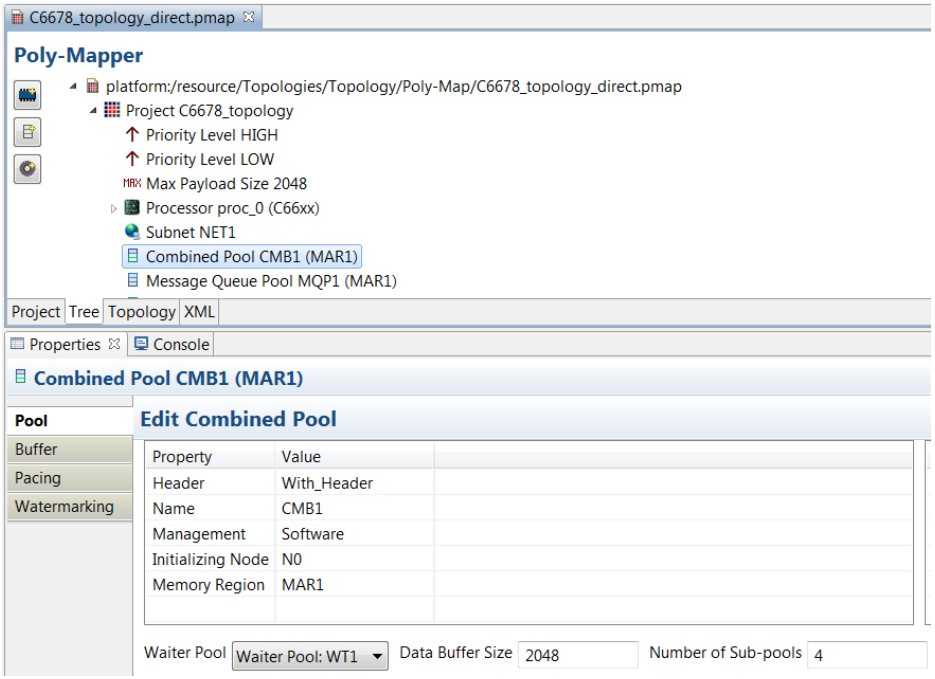
Configure Processor

- Topology

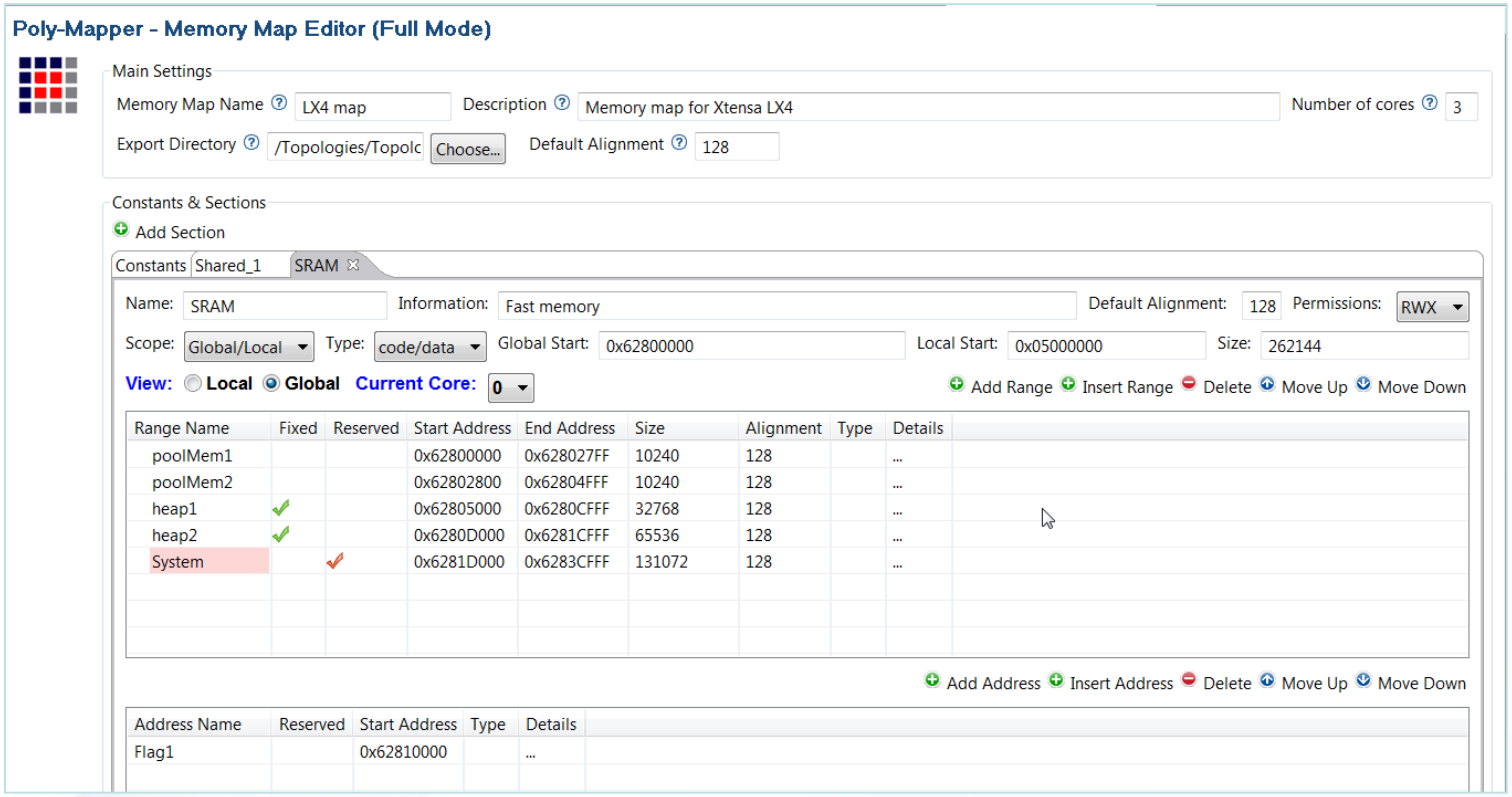




Poly-Platform: Memory Maps

Create, Edit, Validate

- Configure vs. Program
- Single core or multicore
- Validates size and alignment
- Simplifies memory organization
- Helps avoid memory overlaps
- Enhances Portability

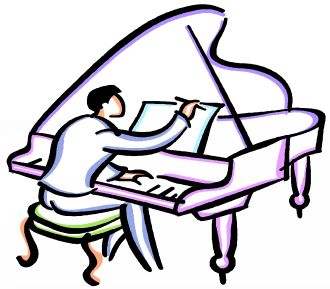


PolyCore Software – *Simplifying Multicore™*

Poly-Platform: Development Framework for Multicore Applications

- Preserves Software Investment
  - Scales & Abstraction
  - Homogeneous/heterogeneous environments

- Improves Development Time/Costs
  - Quickly start on sophisticated platforms
  - Rapid (re)configuration to test
  - Recurring
- Performance: Optimal use of compute resources



- Enhanced Code Quality generated from the Configuration
  - Consistent & repeatable across platforms

Build for today's architecture …And reuse on tomorrow's

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Thank you

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