PROCYON Ultra-High-Performance Simulation Platform

Next-Generation Real-Time System

● Multi-Core Processing   ● HIgh-Speed/Wide Bandwidth Communication
Support complicated model execution / Faster model execution cycle / Handles large-scale data

Applications

■ Large-scale SILS/HILS
■ High-speed control loop
■ Large channel number analysis
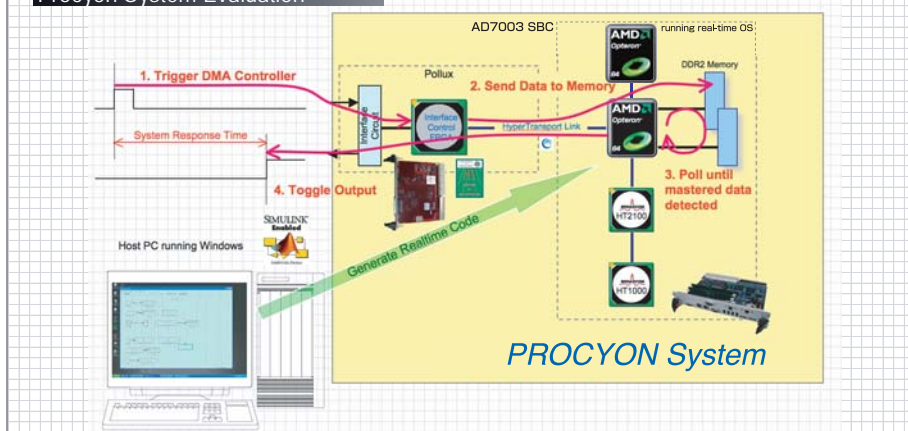■ Ultra-fast I/O cycle

Concept of Procyon

■ Advanced CPU Technology
  ● Multi-CPU / Multi-core; supports max 32 core
    AMD Opteron (Quad Core "Shanghai" processor family)
  ● Low latency I/O via HyperTransport (max 64Gbps)
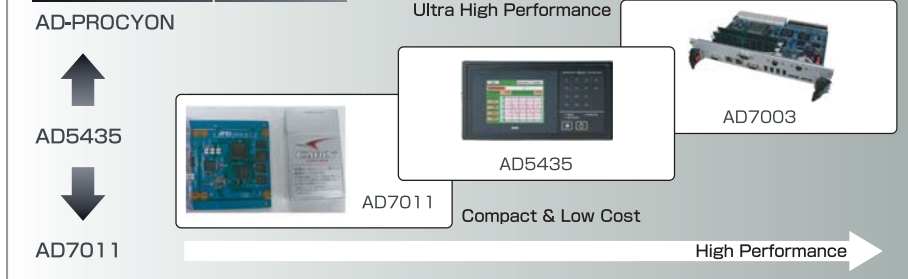
■ Application Development Environment
  ● Real-time application development
    environment with MATLAB/SImulink
  ● GUI development environment with A&D
    VirtualConsole

■ Open, flexible system
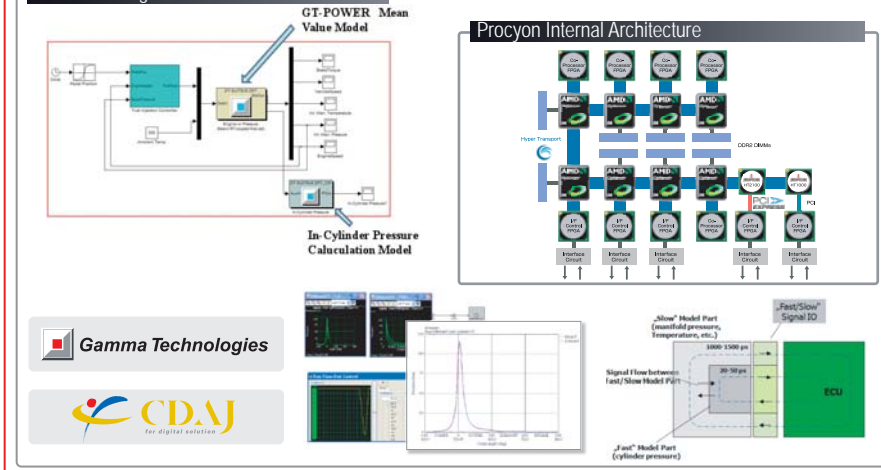
Procyon System Evaluation

AD7003 SBC   running real-time OS

1. Trigger DMA Controller
System Response Time
4. Toggle Output
Host PC running Windows
SIMULINK Enabled
Generate Realtime Code

Pollux
2. Send Data to Memory
HyperTransport Link
3. Poll until mastered data detected
DDR2 Memory
HT2100
HT1000

PROCYON System

Performance Comparison

AD-PROCYON

AD5435

AD7011

Ultra High Performance
AD7003
AD5435
AD7011
Compact & Low Cost
High Performance

GT-SUITE on PROCYON

● Mean value and in-cylinder pressure calculation models
  run on different CPUs

● Crank-angle-based detail calculations can be run in real time
● Control logic developed with pressure, temperature and fuel flow input

Real-Time Engine Model

GT-POWER Mean Value Model
In-Cylinder Pressure Caluculation Model

Gamma Technologies

CDAJ
for digital solution

Procyon Internal Architecture

Hyper Transport
DDR2 DIMMs
"Slow" Model Part (manifold pressure, Temperature, etc.)
"Fast/Slow" Signal I/O
Signal Flow between Fast/Slow Model Part
"Fast" Model Part (cylinder pressure)
ECU

AD5445 **PROCYON**

Procyon SBC AD7003

A&D Technology