DSDP Device Debugging Project Update
http://www.eclipse.org/dsdp/dd/

by Pawel Piech
Wind River Systems, Inc.
What is it?

- **Goal**
  - To improve the overall experience of device software debugging in Eclipse by influencing other projects and filling in missing functionality.

- **DD Project as a forum**
  - Diverse participation: (Wind River (lead), IBM, Mentor Graphics, Nokia, PalmSource, TI, QNX, Freescale, Ericsson, ARM)
  - Close collaboration with other projects (Platform, CDT, etc).
Initiatives Overview

Debugger Views

Memory View

SPIRIT

DSF

GDB

Disassembly

Multi-Context

2005  2006  2007  2008

Requirements / Proposal
Prototype / Implementation
Maintenance / Updates
Debugger Views

To allow complete customization of contents of Eclipse's standard debugger data views (Debug, Variables, Registers) and to create an API for populating these views that makes minimal assumptions about the structure and format for this debug data.
Memory View

Provider memory view support suitable for Embedded development

Custom Renderings Support (Eclipse/Platform/Debug)

Support for custom renderings (Eclipse 3.1)

Concept presented

Prototype checked into HEAD branch and presented

Bug fixes to support Traditional Rendering Callisto (Eclipse 3.2)

2005
2006
2007
2008

Traditional Rendering (Project/Sub-Project/Component)

2005
2006
2007
2008

Europa (DD 0.9)

Ganymede (DD 1.0)

Now

Bug fixes

© Wind River Systems, released under EPL 1.0. All logos are TM of their respective companies.
SPIRIT Debug Working Group

To achieve some level of standardization of "target descriptions" used by device debuggers in Eclipse

IP-XACT Editor (DSDP/DID/IP-XACT)

- SPIRIT Debug working group starts to participate in DD
- Lengthy legal review of SPIRIT and Eclipse licenses
- Community voice of support for standardization effort

Debugger D at a Schema

- IP-XACT driven register view plugin submission
- Support for IP-XACT 1.4
- Europa (DD 0.9)
- SPIRIT Debug WG gathering requirements for schema

Views based on IP-XACT

Timeline:
- 2005
- 2006
- 2007
- 2008
- Now
DSF (Debugger Services Framework)

Create an alternative debug model API that will accommodate diverse needs of embedded debuggers: performance, modularity, extendability.
GDB Reference Implementation

Create a GDB-based debugger which implements DSF model APIs. This debugger should be functionally equivalent to the GDB debugger using CDI and standard debug model.

GD B/MI Reference Implementation
(DSD P/D D/GDB)

Limited prototype checked into CVS along with DSF
Europa 0.9

Development to reach CDI-GDB equivalent functionality

Ericsson contributes resources to project

Ganymede (DD 1.0)

2005 2006 2007 2008

Now
Disassembly

To provide a disassembly editor and replace existing CDT disassembly view.
Multi-Context

To improve workflows and context switching when debugging multiple threads, processes, targets, etc.

Pin & Clone
(Eclipse/Platform/Debug)

Multi-Context
(Eclipse/Platform/Debug)

“Pin and Clone” for debug views workflow proposed

Patch contributed to Platform, but not used in 3.3

Refined proposal for managing multiple view instances

Effort deferred until after Ganymede

2005  2006  2007  2008