Device Debugging 0.9 Europa Release Review

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1-minute summary slide

- Features
  - Debugger Services Framework (DSF)
  - Traditional "embedded" memory view rendering
  - IP-XACT editor preview
- API
  - All API's are provisional (DD project is in incubation)
- End of life
  - N/A
- IP
  - Contributions have been through the IPZilla process where required.
  - IP log has been updated.
- Committer Diversity
  - (committers) WindRiver, IBM, ARM, Mentor, Nokia, PalmSource
  - (contributors) Ericsson, MontaVista

DSDP Device Debugging – Introduction

- Major project milestones

    - DD proposed as part of DSDP – May 2005; Created – June 2, 2005

    - New Eclipse Debug Platform Model/API's – Eclipse 3.2

    - New Memory View with customizable rendering – Eclipse 3.2

    - Debugger Services Framework introduced – July 2006

    - EclipseCon presentation – March 2007

    - ESC presentation – April 2007

- Continuing to expand community

    - DSF commercial adoption by Wind River

    - DD memory rendering used in several CDT-based products

    - Ericsson building GDB implementation under DSF

DD 0.9 Features

- 0.9 Plan available at
  http://www.eclipse.org/dsdp/dd/development/plan.php

- Debugger Services Framework (DSF)

  - An implementation of the Eclipse 3.2 Debug Model Interfaces.

  - Designed as an extensible services architecture for building commercial embedded debuggers.

- Traditional Memory View Rendering

  - An implementation of the standard hex-based memory view look-and-feel found in most embedded debuggers.

- GDB debugger DSF implementation (preview only)

  - To demonstrate how to integrate a debug engine with DSF

- IP-XACT Editor (preview only)

  - XML editor compliant with the SPIRIT consortium's IP-XACT standard for defining SoC properties.

- DSF and IP-XACT documentation

Non-code aspects

- User documentation and tutorials

  - http://dsdp.eclipse.org/help/latest/

  - Automatically updated from nightly builds

- ISV documentation and tutorials

  - Includes Javadoc, architectural overview, and 1 tutorial

- Externalization

  - Appropriate strings are externalized, but no localization will be done

- Publications and Conference talks as part of DSDP

- Comprehensive whitepaper presented at ESC 07

API: 0.9 Status

- No previous releases of DD.

- All API's are provisional at this point, given DD's incubation status.

- DSF and the IP-XACT editor are expected to evolve throughout the upcoming 1.0 development cycle.

Architectural Issues

- DSF is an extensible framework intended to be extended by commercial device software development tools vendors for their proprietary debug engines and target platforms.

- The GDB implementation of DSF is intended to provide the "Tool" component of the DD project. However, the GDB implementation is only partially completed as of the 0.9 release.

- The IP-XACT editor (provided as a preview only for the 0.9 release) is also exclusively a Tool component.

- More Unit Tests are needed for the DSF services components.

- Overlaps with other projects

  - This project functionally overlaps with the CDT debugger. This is by design, as the DD project is attempting to build the next-generation debug framework for CDT. Many of the CDT debug participants are also DD project participants.

Tool Usability

- The GDB debugger implementation of DSF provides rudimentary launch and debug capabilities for debugging processes using the GDB debug engine.

- IP-XACT editor

  - Utilizes the IP-XACT schema (separately downloaded) for rules checking.

  - Provides the user will a large library of SoC components for building a chip design.

  - Provides a wizard for creating new components.

- The Traditional Memory Rendering is a fully-functional memory view rendering that can be included in any Eclipse debugger that utilizes the Eclipse Memory View and framework.

End-of-life

- Not applicable to DD since this is the first Open Source release.

Bugzilla

- Statistics as of 29-May-2007

Status

	NEW	ASSIGNED	REOPENED	RESOLVED	CLOSED	Total
blocker	1	.	.	.	.	1
critical	2	.	.	1	.	3
normal	31	5	1	48	2	87
minor	1	1	.	2	.	4
enhancement	47	.	.	17	.	64
Total	82	6	1	68	2	159

Severity (row labels for the table above)

- Release Exit Criteria

  - 0 Major or Critical Bugs for Current release.

  - Critical bugs allowed for future releases.

Standards

- IP-XACT 1.3

    - For details, see http://spiritconsortium.org

- ECSI (European Electronic Chips & Systems Design Initiative)

    - DSF was presented at the ECSI workshop on debug standard proliferation.

    - Discussions about potential overlap and synergy with other standards such as Sprint and TCF

UI Usability

- Externalization and Accessibility guidelines followed

  - Keyboard accessibility of all items verified

  - Menu items for special keys

  - Messages marked up properly for screen readers

- All UI-visible Strings are externalized

- Externalization partially through Eclipse NLS mechanism

- No localization will be done.

Schedule

- Project plan posted 5-Feb-2007

- DD has been building with Europa since Milestone 4

	Planned	Actual	Comment
0.9 M4	4-Jan-2007	4-Jan-2007	Europa M4 had issues
0.9 M5	23-Feb-2007	23-Feb-2007	
0.9 M6	6-Apr-2007	9-Apr-2007	Minor site.xml issue
0.9 RC0	18-May-2007	21-May-2007	Minor feature.xml issue
0.9	29-Jun-2007	TBD	

Process

- Open, Transparent Planning and Execution:
    - Features and Technical Working Groups maintained on Bugzilla, with "Overview" index entries on the Wiki
    - Made all communications public on the Mailing List, Regular phone conferences open to the public. All notes on Wiki.
- Several open meetings to discuss requirements, use cases, and development issues.
- Coding camp to kick off GDB+DSF tooling.
- Infrastructure: Automated nightly builds, Automated nightly infocenter update

Committers and Contributors

- 10 committers from 6 organizations (WindRiver, IBM, Mentor, Nokia, PalmSource, ARM).

- Direct contributions from Wind River (1 engineer), Ericsson (2 engineers), MontaVista (1 engineer)

- Mailing list participation from Freescale, QNX, TI, AMI

- Emphasis on stabilizing DSF and building GDB reference implementation.

- Weekly DSF committer calls

- Face-to-face meetings held in Toronto and Alameda

Community

- **Developer and Plug-in Provide Communities**

    - Strongest support right now.

    - Emphasis with DD 0.9 is building the framework needed for commercial adoption.

    - Coding camp to get new Contributors up to speed on DSF code.
        - Very successful getting up to speed session on framework that resulted in several commits of patches from 3 new contributors.

- **User Community**

    - Targeted for 1.0 release with the GDB reference implementation and with first official release of IP-XACT editor.

- **Talks at EclipseCon, ESC West, EclipseSummit Europe 2006**

- **Press activity as part of DSDP**

    - See DSDP press coverage report

IP Issues

As per the Eclipse IP Policy, the project verifies that:

- ... the about files and use licenses are in place as per the Guidelines

- ... all contributions (code, documentation, images, etc) have been committed by individuals who are Members of the Foundation and are abiding by the Eclipse IP Policy (training through Committer HOWTO)

- ... all significant contributions have been reviewed by the Foundation's legal staff – even if written by committers prior to joining Eclipse

- ... third-party libraries, have been documented in the release and reviewed by the Foundation's legal staff

- ... all contribution questionnaires have been completed

- ... the "provider" field of each plug-in is set to "Eclipse.org"

- ... the "copyright" field of each plug-in is set to the copyright owner

- See the IP Log at http://www.eclipse.org/dsdp/dd/development/dd-log.csv

Future Plans

- Release 1.0 on Ganymede Train – June 08

- Service release in August 07 for commercial DSF adoption.

- Preview release in January 08 (on train) for GDB reference implementation.

- Proposed feature set

  - GDB debugger services implementation under DSF with CDT-level feature transparency.

  - 1.0 release of IP-XACT editor supporting version 1.4 of the standard.

  - Sample debugger views utilizing IP-XACT information.

  - Non-provisional DSF API's.