


## About These Release Notes

These release notes cover versions 10.0 through 11.0 of the Altera® Nios® II Embedded Design Suite (EDS). These release notes describe the revision history and errata for the Nios II EDS.

Errata are functional defects or errors, which might cause the product to deviate from published specifications. Documentation issues include errors, unclear descriptions, or omissions from current published specifications or product documents.

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 For the most up-to-date errata for this release, refer to the latest version of the [Nios II Embedded Design Suite Release Notes and Errata](#) on the Altera website. You can refer to release notes and errata for the Nios II processor core in the *Nios II Processor* chapter of the [MegaCore IP Library Release Notes and Errata](#).

## Revision History


Table 1 shows the revision history for the Nios II EDS, including the Nios II C2H Compiler.

**Table 1.** Nios II Embedded Design Suite Revision History (Part 1 of 2)

Version	Date	Description
11.0	May 2011	<ul style="list-style-type: none"> <li>■ The Nios II EDS by default supports the GCC 4.1.2 version of the GNU Compiler Collection (GCC). GCC 3.4.6, the Nios II IDE, and Nios II C2H Compiler are optional features. They are available only if you enable <b>Legacy Package: Nios II IDE / GCC3 Toolchain / C2H Compiler</b> when you install the Altera Complete Design Suite.</li> <li>■ Projects created with version 10.1 and earlier of the Nios II SBT need to be re-imported to create the Nios II launch configuration correctly.</li> </ul>
10.1	December 2010	Maintenance release

**Table 1.** Nios II Embedded Design Suite Revision History (Part 2 of 2)

Version	Date	Description
10.0	July 2010	<ul style="list-style-type: none"> <li>■ Nios II Software Build Tools (SBT) for Eclipse <ul style="list-style-type: none"> <li>■ Updated Eclipse to version 3.5 and Eclipse C/C++ development toolkit (CDT) to version 6.0</li> <li>■ Improved Source File management</li> <li>■ Supports Multi-CPU launch</li> </ul> </li> <li>■ Updated to Nios II GCC 4.1.2 tool chain <ul style="list-style-type: none"> <li>■ Supports both Nios II SBT for Eclipse and Nios II Command Shell</li> <li>■ GCC 4 improves compilation time compared to GCC 3 on Windows</li> </ul> </li> <li>■ Host platform <ul style="list-style-type: none"> <li>■ Supports Windows 7</li> <li>■ Supports SUSE Linux Enterprise 11</li> <li>■ Support for SUSE Linux Enterprise 9 discontinued</li> </ul> </li> <li>■ New Nios II software design examples for Reduced Gigabit Media Independent Interface (RGMII) <ul style="list-style-type: none"> <li>■ Web Server (RGMII)</li> <li>■ Simple Socket Server (RGMII)</li> </ul> </li> <li>■ Legacy hardware design examples (Stratix II and Cyclone II) are removed</li> <li>■ Installer changes <ul style="list-style-type: none"> <li>■ Nios II EDS must be installed next to Quartus II</li> </ul> </li> </ul>

 For more information on new features and changes, refer to the *Nios II Processor Reference Handbook*, the *Nios II Software Developer's Handbook*, and the *Nios II C2H Compiler User Guide*. For information about changes to the Nios II processor core, refer to the *Nios II Processor* chapter of the *MegaCore IP Library Release Notes and Errata*.

## Deprecated Features

### C2H SBT Command-Line Flow

The C2H command-line flow using **nios2-c2h-generate-makefile** is deprecated as of version 10.0.

### Notice about Environment Variables

The `QUARTUS_ROOTDIR` and `SOPC_KIT_NIOS2` environment variables will be deprecated in a future release. If you have custom scripts that use these variables, you should be prepared to change them to be independent of these variables, or to set the environment variables yourself.

## Errata Summary

Table 2 summarizes the issues that affect the Nios II Embedded Design Suite versions 10.0 through 11.0. For a detailed description of each issue, click on the issue name.

 Refer to the Altera [Knowledge Database](#) for older errata and solutions.

**Table 2.** Nios II EDS Errata (1) (Part 1 of 4)

Added or Updated	Issue	Page	Affected Version		
			11.0	10.1	10.0
<b>Nios II SBT for Eclipse</b>					
Jun 2011	<a href="#">Nios II Launch Configurations Not Visible after Service Pack Installation</a>	7	✓	—	—
	<a href="#">Build Errors on Software for Pre-Existing Design with SG-DMA</a>	7	✓	—	—
	<a href="#">No .sopcinfo File Name Shown in Nios II BSP Properties Page</a>	7	Fixed	✓	—
	<a href="#">Only One Thread Visible When Debugging MicroC/OS-II Application</a>	8	—	Fixed	—
	<a href="#">Nios II Consoles Do Not Work With Multiprocessor Project</a>	8	Fixed	✓	✓
	<a href="#">Nios II SBT for Eclipse Hangs When Project Run as Nios II Hardware</a>	8	Fixed	✓	—
	<a href="#">Run As Nios II ModelSim Does Not Work</a>	9	Fixed	✓	—
	<a href="#">Error Building Imported Project: 'No rule to make target'</a>	9	✓	✓	✓
	<a href="#">Debugger Breaks in crt0.s Instead of main()</a>	10	—	—	Fixed
	<a href="#">Nios II Options Do Not Appear in Eclipse</a>	11	Fixed	✓	✓
<a href="#">Error Building Imported Project: 'target pattern contains no %'</a>	11	—	—	Fixed	
Jan 2011	<a href="#">Nios II SBT for Eclipse Unable to Create New Application and BSP from Template</a>	12	✓	✓	—
	<a href="#">Run Configuration Cannot Find Imported Custom Makefile Project</a>	12	—	Fixed	✓
	<a href="#">Errors Creating or Importing Software Projects</a>	13	—	Fixed	✓
Sep 2010	<a href="#">The Restart Button in the Debugger Does Not Work</a>	13	✓	✓	✓
July 2010	<a href="#">Missing Nios II Perspective</a>	14	✓	✓	✓
	<a href="#">Error Marker Persists on BSP Project After Build Error Corrected</a>	14	✓	✓	✓
	<a href="#">'Exclude from build' Not Supported</a>	14	✓	✓	✓
Nov 2009	<a href="#">Error Messages on Console When Debugging</a>	15	✓	✓	✓
	<a href="#">Errors Converting Nios II IDE Multiprocessor Project</a>	15	✓	✓	✓
	<a href="#">Stop on Startup Option in Run Configuration Has No Effect</a>	15	✓	✓	✓
<b>C2H Compiler</b>					
Jan 2011	<a href="#">C2H Compiler Does Not Work in the Nios II Command Shell with GCC 4</a>	16	✓	✓	✓
Jul 2008	<a href="#">Functions Declared Without a Return Type Are Not Supported</a>	16	✓	✓	✓
Oct 2007	<a href="#">Pre-7.1 Systems Are Not Supported</a>	16	✓	✓	✓
	<a href="#">--src-dir SBT Argument Does Not Work With C2H</a>	16	✓	✓	✓

**Table 2.** Nios II EDS Errata (1) (Part 2 of 4)

Added or Updated	Issue	Page	Affected Version		
			11.0	10.1	10.0
May 2007	Accelerator Generation Failure If Tools Are Installed in Path With Spaces	17	✓	✓	✓
	The C2H Compiler Regenerates an Accelerator Unnecessarily	17	✓	✓	✓
	Error: c2h_accelerator_base_addresses.h: No such file or directory	17	✓	✓	✓
	Java Heap Space Exception if Quartus II Compilation is Enabled	18	✓	✓	✓
	Pointer Dereferences to Volatile Types	18	✓	✓	✓
Dec 2006	C2H Compiler Does Not Accelerate Subfunctions Located in a Separate File	18	✓	✓	✓
Jun 2006	Array Elements in Structures Do Not Copy Correctly	19	✓	✓	✓
	Clean Build Causes Build Failure	19	✓	✓	✓
	Changing Build Configurations Produces Unexpected Results	20	✓	✓	✓
	Hardware Accelerators Remain After Deleting the Software Project (2)	20	✓	✓	✓
	Incorrect Results From Logical or Conditional Operation With Side-Effects	20	✓	✓	✓
	Launch SOPC Builder Button in C2H View	21	✓	✓	✓
<b>Development Boards</b>					
Jun 2006	Intermittent Failures While Accessing CompactFlash Card	21	✓	✓	✓
<b>Documentation Issues</b>					
Jun 2011	Incorrect information about Embedded C++	22	✓	✓	✓
	Error Building Project: 'No rule to make target'	23	—	Fixed	✓
	Eclipse CDT Features Not Supported by Nios II Plugins	23	Fixed	✓	✓
	Incorrect Information about Nested Exceptions	25	—	—	Fixed
July 2010	AN543 Contains Incorrect Information about Updating the Flash	26	✓	✓	✓
Feb 2010	Valid Range of hal.log_flags is -1 to 3	26	✓	✓	✓
Nov 2009	NicheStack TCP/IP Stack - Nios II Edition Does Not Support TFTP	27	✓	✓	✓
	Error Message After Renaming Project: "Resource is out of sync with the system"	27	✓	✓	✓
Mar 2009	Compiler Flags for Building Custom Newlib	27	✓	✓	✓
Oct 2007	Nios II IDE Online Help Expand Buttons Do Not Work	28	✓	✓	✓
<b>Hardware Abstraction Layer</b>					
Jun 2011	Missing Structure Member Errors in alt_log_printf.c with Small JTAG UART Driver	29	—S	—	Fixed
<b>Hardware Example Designs</b>					
Jan 2011	Quartus II Compilation Warnings for Nios II Stratix II 2S60 ROHS Example	30	✓	✓	✓
<b>Software Examples</b>					
Jun 2006	Networking Examples	30	✓	✓	✓
<b>Flash Programmer</b>					
Dec 2006	elf2flash File Size Limit	31	✓	✓	✓

**Table 2.** Nios II EDS Errata (1) (Part 3 of 4)

Added or Updated	Issue	Page	Affected Version		
			11.0	10.1	10.0
<b>Hardware Simulation</b>					
Jun 2011	Missing .dat File Error Message: "Failed to open VHDL file"	31	✓	—	—
	JTAG UART Interactive Window for Simulation Does Not Work	31	✓	—	—
Dec 2006	Error "UNC paths are not supported" Launching ModelSim	32	✓	✓	✓
Jun 2006	Uninitialized .bss Variables in Simulation	32	✓	✓	✓
<b>Host Platform</b>					
Jan 2011	Nios II EDS Requires Administrative Permissions on Windows Vista and Windows 7	32	✓	✓	✓
Nov 2009	Cannot Launch Nios II SBT for Eclipse on Red Hat Linux	33	✓	✓	✓
Dec 2007	Windows/Cygwin: Nios II Processor Generation Failure	33	✓	✓	✓
Oct 2007	Windows Vista: Limited Support in Nios II EDS	34	—	—	—
<b>Nios II IDE</b>					
<b>Building Projects</b>					
Mar 2009	Nios II IDE Command-Line Tools Select Wrong Workspace on Linux	34	✓	✓	✓
	Nios II IDE Command-Line Tools Hang on Windows	35	✓	✓	✓
Nov 2008	Nios II IDE Cannot Find stdio.h in Outline View	36	✓	✓	✓
Jul 2008	Nios II IDE Hangs With UNC Project Path	36	✓	✓	✓
	Build Failure with Nios II Advanced Exceptions, MMU, and MPU	36	✓	✓	✓
May 2007	Build Command Not Functional for BSPs Created With the Nios II SBT	37	✓	✓	✓
	Linker Errors with Dual-Port Memories	37	✓	✓	✓
	User-Managed BSP Settings Not Supported in Nios II IDE	37	✓	✓	✓
	URL Project Location Causes Project Creation Error	38	✓	✓	✓
Dec 2006	Compilation Error with Separate Exception Stack Option	38	✓	✓	✓
	Incorrect Stack and Heap Free Space Report	38	✓	✓	✓
	Nios II IDE Reports Problems Without Displaying Error in Console	38	✓	✓	✓
<b>Debugging Projects</b>					
Jun 2011	Nios II IDE shows "Source not found" during debugging	39	✓	—	—
Nov 2009	Method for Accessing MMU and MPU Registers in the Debugger	39	✓	✓	✓
Nov 2008	IDE Cannot Display Imported Profiling Data	40	✓	✓	✓
Jul 2008	Error Message when Downloading .elf File	40	✓	✓	✓
	Variable Casting Unsupported in ISS	40	✓	✓	✓
	Trace Debug Does Not Support Instruction-Related Exceptions	41	✓	✓	✓
Oct 2007	Trace Debug Does Not Support the JMPI Instruction	41	✓	✓	✓
May 2007	Cannot Locate Source Code in Driver Files Shared by Multiple Projects	41	✓	✓	✓
	Console Window Is Not Updated After ISS Error	41	✓	✓	✓
	ISS Fails on Designs Containing Triple Speed Ethernet MAC or SG-DMA Components	41	✓	✓	✓
	Memory Window Sets Control Register Values Incorrectly	42	✓	✓	✓

**Table 2.** Nios II EDS Errata (1) (Part 4 of 4)

Added or Updated	Issue	Page	Affected Version		
			11.0	10.1	10.0
Dec 2006	Programs That Interact With a Terminal Console on Windows Do Not Work	42	✓	✓	✓
	“Run as ModelSim” in the Nios II IDE Fails	42	✓	✓	✓
	The Restart Command on the Run Menu Does Not Work	43	✓	✓	✓
Jun 2006	Watchpoints Do Not Work on Certain Variables	43	✓	✓	✓
<b>Navigating Projects</b>					
Dec 2006	Nios II IDE Freezes While Displaying the Splash Screen	43	✓	✓	✓
	Internal Error When Double-Clicking on a Large Objdump File	44	✓	✓	✓
Jun 2006	C/C++ Scanner Does Not Support Certain C/C++ Constructs	44	✓	✓	✓
<b>Nios II SBT</b>					
Jun 2011	Incorrect IRQ Information in system.h	44	✓	✓	—
	Nios II SBT Creates Spurious BSP for System with MMU	45	Fixed	✓	—
July 2010	Error Running Nios II Project: ‘Downloading ELF Process failed’	45	✓	✓	✓
May 2010	BSP Editor Does Not Show Command-Line Help	46	✓	✓	✓
Feb 2010	BSP Not Updated for Memory Size Changes in SOPC Builder	46	✓	✓	✓
Nov 2009	Build Errors on Interrupt API Calls	46	✓	✓	✓
Oct 2007	SBT Fails if Nios II EDS is Installed in a Path Containing Spaces	47	✓	✓	✓
May 2007	User-Managed BSP Settings Not Supported in Nios II IDE	37	✓	✓	✓
<b>Peripherals</b>					
Jun 2011	System Timestamp for System ID Peripheral Is Always 0	48	✓	—	—
Jul 2008	Unaligned Transfers of Small Payloads Fail on SG-DMA	48	✓	✓	✓
May 2007	DMA Controller Always Busy in Burst Mode	48	✓	✓	✓
	Non-System-Wide Reset Can Cause Improper Initialization of Mailbox Core	48	✓	✓	✓
<b>Target Software</b>					
Nov 2009	EIC-Based Nios II System Crashes With NicheStack	49	✓	✓	✓
Dec 2006	stdio Does Not Work with MicroC/OS-II and Small C Library	49	✓	✓	✓
Jun 2006	cout From MicroC/OS-II Task Does Not Send Data to stdout	49	✓	✓	✓
<b>Toolchain and Utilities</b>					
Jun 2011	nios2-download Cannot Find JTAG Instance IDs	50	Fixed	✓	—
Jan 2011	Warning Message: “‘pragma_reverse_bitfields’ attribute directive ignored”	50	✓	✓	✓
Sep 2010	nios2-console Does Not Work in the GCC 4 Command Shell	50	✓	✓	✓
July 2010	C++ Exceptions Unsupported in a Multi-Threaded Environment	51	✓	✓	✓
	C++ Exceptions Unsupported by the Nios II GCC 4 Toolchain	51	✓	✓	✓
	memcpy() Optimization Misalignment	51	✓	✓	✓
Dec 2006	GNU Assembler Does Not Accept the --defsym Flag	51	✓	✓	✓

**Notes to Table 2:**

- (1) Refer to the Altera Knowledge Database for older errata and solutions.
- (2) For further information, refer to the *Nios II C2H Compiler User Guide*.

## Nios II SBT for Eclipse Errata

This section describes in detail the issues related to the Nios II SBT for Eclipse.

### Nios II Launch Configurations Not Visible after Service Pack Installation

After installing Altera Complete Design Suite version 10.1 Service Pack 1 over an existing version 10.1 installation, the first time you start the Nios II SBT for Eclipse, you might not see Nios II-specific launch configurations, such as **Run As Nios II Hardware** and **Run As Nios II ModelSim**. Only the **Run As Local C/C++ Application** configuration might be visible.

#### Workaround

Close and restart the Nios II SBT for Eclipse to see the Nios II-specific launch configurations.

#### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

### Build Errors on Software for Pre-Existing Design with SG-DMA

If you have a Nios II system generated with SOPC Builder version 10.1 or earlier, and it contains the Scatter-Gather DMA (SG-DMA) component, you cannot build software for it with the Nios II SBT for Eclipse version 11.0 or later. If you attempt to do so, the Nios II compiler reports errors.

The SG-DMA component is updated for version 11.0 and the software driver is not compatible with older versions of hardware. The minimum compatible hardware version of a component is defined in the component's `_sw.tcl` file, for example `set_sw_property min_compatible_hw_version 11.0`.

#### Workaround

Regenerate the design with SOPC Builder version 11.0 or later before attempting to compile the software in the Nios II SBT for Eclipse.

#### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

### No .sopcinfo File Name Shown in Nios II BSP Properties Page

In the Nios II SBT for Eclipse, the **SOPC Info** field in the Nios II BSP properties page should display the `.sopcinfo` filename for the underlying hardware design. In the Nios II SBT for Eclipse running on the Windows operating system, this field is empty.

#### Design Impact

The **SOPC Info** field is a read-only field. This issue does not affect functionality.

#### Workaround

None needed.

### **Solution Status**

Fixed in version 11.0 of the Nios II EDS

## **Only One Thread Visible When Debugging MicroC/OS-II Application**

When you use GCC 4 tool chain, the Nios II SBT for Eclipse debugs a multi-threaded application as if it were a single-threaded application.

### **Workaround**

Use GCC 3 tool chain.

Alternatively, install the Altera Complete Design Suite version 10.1 or later.

### **Solution Status**

Fixed in version 10.1 of the Nios II EDS

## **Nios II Consoles Do Not Work With Multiprocessor Project**

Launch groups do not work with multiple JTAG UARTs in multiprocessor projects.

When you launch a multiprocessor software project with a launch group, if the design uses multiple JTAG UARTs, multiple Nios II consoles appear, but only one of them is active.

### **Workaround**

Launch the software projects individually.

Alternatively, install the Altera Complete Design Suite version 11.0 or later.

### **Solution Status**

Fixed in version 11.0 of the Nios II EDS

## **Nios II SBT for Eclipse Hangs When Project Run as Nios II Hardware**

On Windows, the Nios II SBT for Eclipse sometimes becomes unresponsive when you try to run (or debug) a project with the **Run as Nios II Hardware** (or **Debug as Nios II Hardware**) command.

### **Workaround**

Use one of the following approaches to work around this issue:

- In the **Run Configuration** (or **Debug Configuration**) dialog box, on the **Target Connection** tab, click **Refresh Connections** before running (or debugging) the application. Each time you restart the SBT for Eclipse, you must perform this step for each application you wish to run or debug.
- Visit the [MySupport](#) website and request Quartus® II 10.1 patch 0.18.
- Install the Altera Complete Design Suite version 11.0 or later.

### **Solution Status**

Fixed in version 11.0 of the Nios II EDS

## Run As Nios II ModelSim Does Not Work

In the Windows operating system, if you try to run an application with the **Run As Nios II ModelSim** command, you see the following error message:

```
No such file or directory
```

### Workaround

Visit the [MySupport](#) website and request Quartus II 10.1 patch 0.18.

Alternatively, install the Altera Complete Design Suite version 11.0 or later.

### Solution Status

Fixed in version 11.0 of the Nios II EDS

## Error Building Imported Project: 'No rule to make target'

If an application or library project is created with version 9.1 SP2 or earlier (using the GCC 3 toolchain), and you import it to the version 10.0 Nios II SBT for Eclipse using the GCC 4 toolchain, you might see the build error shown in [Example 1](#).

### Example 1.

---

```
make all
Info: Building ../hw_bsp
make --no-print-directory -C ../hw_bsp
make[1]: *** No rule to make target `/cygdrive/c/tmp/
verilog_niosII_stratixII_2s60_standard/software/hw_bsp/
alt_sys_init.c', needed by `all'. Stop.
make: *** [../hw_bsp-recurs-make-lib] Error 2
```

---

This error can also happen if you import a GCC 3 project to the version 10.0 SBT for Eclipse using the GCC 3 toolchain, and later change the toolchain to **MinGW Nios II GCC4**.

This issue only affects platforms running the Windows operating system.

## Workaround

To avoid this error, follow these steps:

1. Edit the application project and library project makefiles and add the italicized code as shown in [Example 2](#).

### Example 2.

---

```
#-----
# The adjust-path macro
#
# If COMSPEC is defined, Make is launched from Windows through
# Cygwin. This adjust-path macro will call 'cygpath -u' on all
# paths to ensure they are readable by Make.
#
# If COMSPEC is not defined, Make is launched from *nix, and no adjustment
# is necessary
#-----

# Beginning of inserted code
ifndef COMSPEC
ifdef ComSpec
COMSPEC = $(ComSpec)
endif # ComSpec
endif # !COMSPEC
#end of inserted code

ifdef COMSPEC
adjust-path = $(shell cygpath -u "$1")
adjust-path-mixed = $(shell cygpath -m "$1")
else
adjust-path = $1
adjust-path-mixed = $1
endif
```

---

2. Right-click the BSP project, point to **Nios II** and click **Generate BSP**.
3. Clean and rebuild the application and library projects.

Alternatively, install the Altera Complete Design Suite version 11.0 or later.

## Solution Status

This issue will be fixed in a future release of the Nios II EDS.

## Debugger Breaks in crt0.s Instead of main()

If you attempt to launch a debug session by right clicking the project, without first creating a run configuration, the debugger breaks in the initialization code in **crt0.s**, rather than at the top of the `main()` function. You must explicitly create the run configuration before launching the debug session.

### Workaround

You can work around this issue with either of the following methods:

- Create the run configuration with the **Run Configuration** dialog box. You can then debug with this run configuration by right-clicking the project, clicking **Debug As**, and selecting the debug configuration. The program correctly breaks at `main()`.
- Manually set a breakpoint at `main()`.

Alternatively, install the Altera Complete Design Suite version 10.0 or later.

### Solution Status

Fixed in version 10.0 of the Nios II EDS

## Nios II Options Do Not Appear in Eclipse

When Nios II SBT for Eclipse starts, the Nios II plugins might fail to load, resulting in the following symptoms:

- The Nios II perspective is not available
- No Nios II items appear when you click **New** in the File menu

Eclipse can behave this way if you have installed the Nios II EDS in the same directory as a previous installation.

When the Altera Complete Design Suite installer installs the Nios II EDS, you specify a root directory for the EDS file structure. For example, if the Nios II EDS 9.1 is installed on the Windows operating system, the root directory might be `c:\altera\91\nios2eds`. For simplicity, Altera documentation refers to this directory as *<Nios II EDS install path>*.

When the Altera Complete Design Suite installer removes the Nios II EDS, it leaves behind some files in *<Nios II EDS install path>*. If you reinstall the Nios II EDS in the same directory, these leftover files might cause the Nios II SBT for Eclipse to work incorrectly.

### Workaround

To correct this problem, execute the following steps:

1. Uninstall the Nios II EDS.
2. Delete *<Nios II EDS install path>*, including all subdirectories, before reinstalling the Nios II EDS. Or reinstall the Nios II EDS in a different directory.

Alternatively, install the Altera Complete Design Suite version 11.0 or later.

### Solution Status

Fixed in version 11.0 of the Nios II EDS

## Error Building Imported Project: 'target pattern contains no %'

If your application or library makefile uses an absolute path and is generated with the GCC 3 toolchain, and you import it to the version 10.0 Nios II SBT for Eclipse using the GCC 4 toolchain, you get the following build error:

```
makefile:587: *** target pattern contains no '%'. Stop.
```

**Workaround**

Recreate the project using the SBT for Eclipse version 10.0.

Alternatively, use the GCC 3 toolchain.

**Solution Status**

This issue will be fixed in a future release of the Nios II EDS.

**Nios II SBT for Eclipse Unable to Create New Application and BSP from Template**

You should be able to create a new application and BSP from a template with the following steps:

1. Select **Nios II Application and BSP from Template**.
2. Choose your **.sopcinfo** file and select a template.
3. Click **Select an existing BSP project from your workspace**.
4. Click **Create**.
5. Choose the desired BSP options.
6. Click **Finish**.

However, if you try to create a new application and BSP with this method, the SBT creates a BSP, but no application, and the GUI becomes unresponsive.

**Workaround**

Perform the following steps:

1. Click **Cancel** to close the previous GUI.
2. Select **Nios II Application and BSP from Template** again.
3. Choose your **.sopcinfo** file and select a template.
4. Click **Select an existing BSP project from your workspace**.
5. From the BSP list, select the BSP created previously.
6. Click **Finish**.

**Solution Status**

This issue will be fixed in a future release of the Nios II EDS.

**Run Configuration Cannot Find Imported Custom Makefile Project**

After you import a project using the **Import Custom Makefile for Nios II Software Build Tools Project** option, the Nios II SBT fails to recognize the imported custom makefile as a Nios II C/C++ application project. As a result, the project name does not appear in the list in the run configuration.

### Workaround

1. In the **Run Configuration** dialog box, select any visible Nios II C/C++ project. The project need not be related to your custom makefile project.



If there is no Nios II C/C++ project in your workspace, create a dummy project, such as Hello World, through the File menu, by clicking **New, Nios II Application and BSP from Template**.

2. Turn on **Enable browse for file system ELF file**.
3. Browse to the correct **.elf** file for your custom makefile project to complete creation of a run configuration.

Alternatively, install the Altera Complete Design Suite version 10.1 or later.

### Solution Status

Fixed in version 10.1 of the Nios II EDS

## Errors Creating or Importing Software Projects

If you place software projects in your Eclipse workspace directory, you might experience project-related errors. For example, you might see one of the following error messages:

- Unable to create project  
Reason: Unable to create project in workspace directory
- Failed to import  
Reason: Unable to import project

### Workaround

Switch to a different workspace, or create a new workspace, separate from your project files. To switch workspaces or create a workspace, on the File menu, click **Switch Workspace**.

Alternatively, install the Altera Complete Design Suite version 10.0 or later.

### Solution Status

Fixed in version 10.1 of the Nios II EDS

## The Restart Button in the Debugger Does Not Work

When debugging in the Nios II SBT for Eclipse, if you click the **Restart** icon, execution is suspended, with the following error message:

```
Don't know how to run. Try "help target."
```

### Workaround

Terminate the program, download it again, and start the debugger.

### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

## Missing Nios II Perspective

If you launch the Nios II SBT for Eclipse from a universal naming convention (UNC) path, the Nios II perspective does not appear in Eclipse.

This issue appears only on platforms running the Windows operating system.

### Workaround

Do not use a UNC path to launch the Nios II SBT for Eclipse. For example, if the SBT for Eclipse is installed on a network drive, map the network path to a Windows drive letter.

### Solution Status

Not fixed

## Error Marker Persists on BSP Project After Build Error Corrected

In the Nios II SBT for Eclipse, if an application project fails to build, error markers appear in the BSP project, if the build error message contains a path to BSP project source files. Even after you have rebuilt the application project without errors, the error markers persist in the BSP project.

### Workaround

Rebuild your BSP project.

Alternatively, if your application will always be associated with the same BSP, set the Eclipse project references by following these steps:

1. Right-click your application project, point to **Properties** and click **Project References**.
2. Select the desired BSP for your application.
3. Build your application project again to clear the error markers in the BSP project.



If you later link your application project with a different BSP, you must manually correct the Eclipse project references.

### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

## 'Exclude from build' Not Supported

In the Nios II SBT for Eclipse version 9.1 SP2 and earlier, you can use the **Exclude from build** command to omit a source file from your project at build time. Starting with version 10.0, **Exclude from build** is replaced by the **Remove from Nios II build** and **Add to Nios II build** commands.

Due to an Eclipse platform limitation, **Exclude from build** still appears in the project context menu in version 10.0. However, it has no effect.

**Workaround**

To exclude a source file from your project when it is built, on the project context menu, click **Remove from Nios II build**. To restore it to the build, click **Add to Nios II build**.

**Error Messages on Console When Debugging**

When debugging, you might see the following messages in the Nios II SBT for Eclipse console:

```
No symbol "auto" in current context.
```

```
No symbol "new" in current context.
```

These are normal messages from the GNU Debugger (GDB) console, not error messages. This issue does not impact the debug process.

**Workaround**

No workaround needed.

**Solution Status**

None needed.

**Errors Converting Nios II IDE Multiprocessor Project**

If you try use the `nios2-convert-ide2sbt` utility to convert an IDE multiprocessor project to the Nios II SBT, error messages appear, and the project fails to generate properly.

**Workaround**

Create new Nios II SBT application and BSP projects using project settings equivalent to the original Nios II IDE project settings.

**Solution Status**

This issue will be fixed in a future release of the Nios II EDS.

**Stop on Startup Option in Run Configuration Has No Effect**

Turning on **Stop on Startup** at in the **Debugger** tab of a run configuration has no effect.

**Workaround**

You can manually set any breakpoint in the debug perspective.

**Solution Status**

This issue will be fixed in a future release of the Nios II EDS.

## C2H Compiler Errata

This section describes in detail the issues related to the Nios II C2H Compiler.

### C2H Compiler Does Not Work in the Nios II Command Shell with GCC 4

The Nios II Command Shell with GCC 4 does not support the C2H Compiler.

#### Workaround

Use the Nios II Command Shell with GCC 3.

#### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

### Functions Declared Without a Return Type Are Not Supported

The C2H compiler does not support functions without an explicitly declared return type.

#### Workaround

If you are using the implicit `int` return type, declare the return type explicitly. If your function has no return value, declare it as `void`.

#### Solution Status

Not fixed

### Pre-7.1 Systems Are Not Supported

Starting in version 7.1, the C2H Compiler does not support SOPC Builder systems created in SOPC Builder version 7.0 or earlier (systems based on a `class.ptf` file).

#### Workaround

Before using the C2H Compiler, you must upgrade your SOPC Builder system. Open the system in SOPC Builder version 7.1 or later. SOPC Builder prompts you to convert the system, creating a `*_hw.tcl` file compatible with the C2H Compiler.

#### Solution Status

Not fixed

### --src-dir SBT Argument Does Not Work With C2H

When using the C2H Compiler with Nios II SBT, an error occurs when using the `nios2-app-generate-makefile` argument `--src-dir` to specify a directory of source files. An example of the error is:

```
multiple definition of 'my_accelerated_function'
```

#### Workaround

Specify source files individually using the `--src-files` argument.

**Solution Status**

Not fixed

**Accelerator Generation Failure If Tools Are Installed in Path With Spaces**

If the path to your installation of the Altera Design Suite contains spaces, the C2H Compiler fails to generate the accelerators.

**Workaround**

Reinstall the tools to a path containing no spaces.

**Solution Status**

This issue will be fixed in a future release of the Nios II EDS.

**The C2H Compiler Regenerates an Accelerator Unnecessarily**

The C2H Compiler might regenerate an accelerator even when the accelerated function is unchanged. This problem can result from changes to files included by the C file containing the accelerated function. The C2H Compiler fails to check that the generated hardware description language (HDL) matches the previously generated HDL causing the system to be regenerated.

**Workaround**

To avoid this issue move the accelerator-specific information from the include file to a separate include file. This workaround prevents regeneration of the system when the HDL is unchanged.

**Solution Status**

Not fixed

**Error: c2h\_accelerator\_base\_addresses.h: No such file or directory**

When a C2H accelerator is compiled for the first time, the following compile-time error can result if the **Analyze all accelerators** option is selected:

```
c2h_accelerator_base_addresses.h: No such file or directory.
```

**Workaround**

Click **Build software and generate SOPC Builder system** and build once before building with the **Analyze all accelerators** option.

**Solution Status**

This issue will be fixed in a future release of the Nios II EDS.

## Java Heap Space Exception if Quartus II Compilation is Enabled

If your design contains a C2H accelerator, and you select **Build software, generate SOPC Builder system, and run Quartus II compilation** in the C2H view, you might see the following error during Quartus II compilation:

```
Exception in thread "main" java.lang.OutOfMemoryError: Java heap space
make: *** [c2h_hdl-t] Error 1
```

### Workaround

Select the **Build software and generate SOPC builder system** option in the C2H Compiler settings window, and then manually launch the Quartus II software to compile the design.

### Solution Status

Not fixed

## Pointer Dereferences to Volatile Types

The C2H Compiler treats pointer dereferences to a volatile type as if they alias all other pointer dereferences. Pointers that are restrict-qualified are treated the same way.

The two loops in [Example 3](#) cannot be scheduled concurrently because the `volatile` qualification overrides the `__restrict__` pragma.

### Example 3. Non-Concurrent Loops

---

```
volatile int * __restrict__ fifo_rd = FIFO_RD_BASE;
volatile int * __restrict__ fifo_wr = FIFO_WR_BASE;
for ()
{
    *fifo_wr = ....;
}
for ()
{
    ... = *fifo_rd;
}
```

---

### Workaround

Divide the function into multiple interrupt request (IRQ)-enabled accelerators that are launched concurrently from the processor, and use FIFO buffers to communicate between them.

### Solution Status

Not fixed

## C2H Compiler Does Not Accelerate Subfunctions Located in a Separate File

When accelerating a function in a file, the C2H Compiler cannot link subfunctions that are defined in a different file.

### Workaround

Include all subfunctions called by the accelerated function within the same source code file.

### Solution Status

Not fixed

## Array Elements in Structures Do Not Copy Correctly

C2H accelerators do not correctly copy array elements that are elements of structures.

In [Example 4](#), the a and b elements of the structure copy correctly, but the buf element does not. After this assignment, struct\_a equals {9, 8, {3, 3, 3, 3}}.

### Example 4. Array Elements of Structs

```
typedef struct my_struct {
    int a;
    int b;
    int buf[BUF_SIZE];
}MY_STRUCT;
MY_STRUCT struct_a = {1, 2, {3, 3, 3, 3}};
MY_STRUCT struct_b = {9, 8, {7, 7, 7, 7}};
struct_a = struct_b;
```

### Workaround

Copy the array elements explicitly, as shown in [Example 5](#).

### Example 5. Copying Array Elements Explicitly

```
{
    int i=0;
    do
    {
        struct_a.buf[i] = struct_b.buf[i];
        i++;
    } while (i<LENGTH_OF_BUF_ELEMENT)
}
```

### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

## Clean Build Causes Build Failure

Performing a clean build on a Nios II IDE project that contains a hardware accelerator can cause the next build to fail in the IDE, because the clean build erroneously deletes a file required by the C2H Compiler.

### Workaround

Do not perform a clean build on projects that use hardware accelerators. If you have already performed a clean build, recompile with option **Build software, generate SOPC Builder system, and run Quartus II compilation** to regenerate the necessary files.

### **Solution Status**

This issue will be fixed in a future release of the Nios II EDS.

## **Changing Build Configurations Produces Unexpected Results**

The C2H Compiler does not support multiple build configurations (for example Release or Debug) in the Nios II IDE. After creating one or more accelerators in a particular configuration, the C2H Compiler produces undefined results if you switch to a different build configurations and create more accelerators.

### **Workaround**

For a specific SOPC Builder system and Nios II IDE project, specify C2H accelerators in only one build configuration. You can use multiple build configurations, as long as only one configuration specifies C2H Compiler settings.

### **Solution Status**

Not fixed

## **Hardware Accelerators Remain After Deleting the Software Project**

If a system contains C2H accelerators, deleting the software project that defines the accelerators does not remove the accelerators from the hardware system, and the accelerator logic remains in the SOPC Builder system.

### **Workaround**

To remove an accelerator from a system, delete the accelerator from the C2H view in the Nios II IDE first, and then recompile the software project. The C2H Compiler then removes the accelerator from the SOPC Builder system. Once the compilation is complete then the software application can be deleted from the workspace.

### **Solution Status**

Not fixed

## **Incorrect Results From Logical or Conditional Operation With Side-Effects**

The C2H Compiler always evaluates both operands of logical (&&, ||) and conditional (? :) operators. This is different from expected American National Standards Institute (ANSI) C behavior, where operands are evaluated left-to-right, and unnecessary operands are skipped.

For example, in the expression `(i-- && j--)`, if the value of `i` is zero, ANSI C does not evaluate the right-hand-side (RHS) expression, and `j` is not decremented. By contrast, the C2H Compiler evaluates both sides, decrementing `j`.

The following expressions are other examples that might be affected by this issue:

```
if (i-- || j++)  
    ...;
```

```
a = ((cond == 1)? i++ : j++);
```

**Workaround**

Use logical and conditional operations whose operators have no side effects. Operations with side effects include pre- and post- increment and decrement operations (++ , --), memory operations (\*, [ ], ., ->), and function calls.

**Solution Status**

Not fixed

**Launch SOPC Builder Button in C2H View**

When the Nios II IDE workspace contains multiple projects with multiple system libraries, the incorrect SOPC Builder system might open when you click **Launch SOPC Builder** in the C2H view.

**Workaround**

Launch SOPC Builder from the Quartus II software. Alternatively, keep only one system library project open at a time while using the C2H Compiler.

**Solution Status**

Not fixed

**Development Board Errata**

This section describes in detail the Nios II EDS issues related to Nios development boards.

**Intermittent Failures While Accessing CompactFlash Card**

The Nios II Development Kit version 5.0 and later includes a CompactFlash controller peripheral suitable for interfacing to CompactFlash cards in True IDE mode on Nios development boards. For True IDE mode to operate, CompactFlash cards require that the ATASEL\_N input be driven to ground during power-up.

The CompactFlash controller peripheral includes a configurable power register, used to cycle power to CompactFlash cards from Nios II software through a metal oxide semiconductor field-effect transistor (MOSFET) on the Nios development boards. However, in certain development boards, power to the CompactFlash card does not turn off completely during this power cycle operation. Because of this condition, the CompactFlash might not sample the ATASEL\_N pin during the power-cycle operation after FPGA configuration when this pin is driven to ground. Instead, the CompactFlash card might sample the ATASEL\_N pin when power is first applied to the development board, when I/O is not yet driven by the FPGA (before FPGA configuration).

### Workaround

If you encounter errors with CompactFlash when using the Nios development boards, try one of the following solutions:

- Use a different CompactFlash card. Certain cards are more susceptible to the power-cycling issue than others.
- Modify the Nios development board. This is recommended if you are familiar and comfortable with board-level modifications. Disconnect pin 9 (*ATASEL\_N*) on the CompactFlash socket on your Nios development board and tie this pin to ground.



The CompactFlash socket uses a staggered numbering on the pins (starting from pin 1: 1, 26, 2, 27, ...); refer to the CompactFlash Association specification for right-angle surface-mount connectors for exact specifications on this connector. This modification permanently enables True IDE mode operation.

### Solution Status

Not fixed

## Documentation Errata

This section describes in detail the Nios II EDS documentation issues.

### Incorrect information about Embedded C++

The *Embedded Design Handbook* contains the following incorrect statement about C++ support:

The HAL supports only the standard Embedded C++ subset of the full C++ language. C++ programs that use features beyond this subset fail in the HAL environment. C++ features not available in Embedded C++ include polymorphism, templates, and single and multiple object inheritance. In general, features that consume a large amount of memory are not included in Embedded C++. Catch/throw exceptions fail in the MicroC/OS-II environment.

Nios II C++ support is not restricted to the obsolete Embedded C++ specification.

### Workaround

In place of the incorrect paragraph, refer to the following correct information:

Nios II C++ language support depends on the GCC tool chain. The Nios II GCC 4 C++ tool chain supports the following features:

- Polymorphism
- Friendship and inheritance
- Multiple inheritance
- Virtual base classes
- Run-time type information (`typeid`)
- The `mutable` type qualifier
- Namespaces

- Templates
- New-and-delete style dynamic memory allocation
- Operator overloading
- Standard Template Library (STL)

Exceptions and new-style dynamic casts are not supported.

### Solution Status

This issue will be fixed in a future release of the Nios II EDS documentation.

## Error Building Project: 'No rule to make target'

The *Getting Started with Graphical User Interface* and *Getting Started from the Command Line* chapters of the *Nios II Software Developer's Handbook* do not include the following information:

You cannot link Nios II GCC 3 projects with Nios II GCC 4 projects. Your application, library and BSP projects must all use the same Nios II GCC toolchain.

If you switch between Nios II GCC 3 and Nios II GCC 4, make sure you run **make clean** on your application, library and BSP projects before rebuilding.

When importing a GCC 3 BSP, such as a project created with version 9.1 SP2 or earlier, to version 10.0 SBT for Eclipse using the GCC 4 toolchain, after importing the BSP, regenerate the makefile.

If you do not follow these rules, you might see the following error:

```
make[1]: *** No rule to make target `~/cygdrive/c/.../bsp/alt_sys_init.c', needed by 'all'. Stop.
make: *** [../bsp/-recurs-make-lib] Error 2
```

### Solution Status

Fixed in version 10.1 documentation

## Eclipse CDT Features Not Supported by Nios II Plugins

The following information is missing from the *Getting Started with Graphical User Interface* chapter of the *Nios II Software Developer's Handbook*:

The features listed in the left column of [Table 3](#) are supported by the Eclipse CDT plugins, but are not supported by Nios II plugins. The right column lists alternative features supported by the Nios II plugins.



**Table 3.** Eclipse CDT Features Not Supported by the Nios II Plugins (Part 2 of 2)

Unsupported CDT Feature	Alternative Nios II Feature
<ul style="list-style-type: none"> <li>■ Language Mappings</li> <li>■ Paths and Symbols</li> </ul>	Use <b>Nios II Application Properties</b> and <b>Nios II Application Paths</b>
<b>Window Preferences</b>	
C/C++ <ul style="list-style-type: none"> <li>■ Build scope</li> <li>■ Build project configurations</li> <li>■ Build Variables</li> <li>■ Environment</li> <li>■ File Types</li> <li>■ Indexer               <ul style="list-style-type: none"> <li>■ Build configuration for the indexer</li> </ul> </li> <li>■ Language Mappings</li> <li>■ New CDT project wizard</li> </ul>	The Nios II plugins only support a single build configuration.  The Nios II plugins only support a single build configuration.

**Workaround**

Refer to the information in [Table 3](#).

Alternatively, refer to the most recent version of the *Getting Started with Graphical User Interface* chapter of the *Nios II Software Developer's Handbook*.

**Solution Status**

Fixed in version 11.0 documentation

**Incorrect Information about Nested Exceptions**

"Exception Processing" in the *Programming Model* chapter of the *Nios II Processor Reference Handbook* incorrectly states that multiple interrupts with different requested interrupt levels (RILs) must not be assigned to the same shadow register set.

**Workaround**

The correct information is as follows:

Multiple interrupts with different RILs can be assigned to a single shadow register set. However, with multiple register sets, you must not allow the RILs assigned to one shadow register set to overlap the RILs assigned to another register set.

[Table 4](#) and [Table 5](#) illustrate the validity of register set assignments when preemption within a register set is enabled.

**Table 4.** Example of Illegal RIL Assignment

RIL	Register Set 1	Register Set 2
1	IRQ0	
2	IRQ1	
3		IRQ2
4	IRQ3	
5		IRQ4
6		IRQ5
7		IRQ6

**Table 5.** Example of Legal RIL Assignment

RIL	Register Set 1	Register Set 2
1	IRQ0	
2	IRQ1	
3	IRQ3	
4		IRQ2
5		IRQ4
6		IRQ5
7		IRQ6

**Solution Status**

Fixed in version 10.0 documentation

**AN543 Contains Incorrect Information about Updating the Flash**

“Updating the Flash Option Bits on the Cyclone® III Development Board” in AN543, *Debugging Nios II Software Using the Lauterbach Debugger* contains incorrect information about updating the flash.

**Workaround**

The correct information is as follows:

**Updating the Flash on the Cyclone III Development Board**

To restore the flash factory image, refer to “Restoring the Factory Design to the Flash Device” in the *Cyclone III Development Kit User Guide*.

**Solution Status**

This issue will be fixed in a future release of the Nios II EDS documentation.

**Valid Range of hal.log\_flags is –1 to 3**

The Nios II EDS documentation incorrectly states the valid range for the `hal.log_flags` BSP setting. Valid values of `hal.log_flags` range from –1 through 3.

### Solution Status

This issue will be fixed in a future release of the Nios II EDS documentation.

## NicheStack TCP/IP Stack - Nios II Edition Does Not Support TFTP

The Nios II documentation should include the following information:

Versions of the NicheStack TCP/IP Stack other than the Nios II Edition include optional Trivial File Transfer Protocol (TFTP) client and server applications. However, the TFTP client and server are not thread safe. They cannot be used in systems with the MicroC/OS-II RTOS.

TFTP is not available with the NicheStack TCP/IP Stack - Nios II Edition. The TFTP client and server features are disabled.

### Solution Status

This issue will be fixed in a future release of Nios II EDS documentation.

## Error Message After Renaming Project: “Resource is out of sync with the system”

The *Getting Started with the Graphical User Interface* chapter of the *Nios II Software Developer's Handbook* does not explain the correct procedure for renaming a project.

### Workaround

The missing information is as follows:

To rename a project in the Nios II SBT for Eclipse, execute the following steps:

1. Right click the BSP project and click **Rename**.
2. Type the new BSP name.
3. Right click the BSP project and click **Refresh**.



If you neglect to refresh the project, you might see the following error message when you attempt to build it:

```
Resource <original_bsp_name> is out of sync with the system
```

### Solution Status

This issue will be fixed in a future release of Nios II EDS documentation.

## Compiler Flags for Building Custom Newlib

“Common BSP Tasks” in the *Using the Nios II Software Build Tools* chapter of the *Nios II Software Developer's Handbook* describes how to compile a custom version of the newlib library. However, it does not list the compiler flags that must be selected to generate the correct library.

## Workaround

The missing information is as follows:

The Nios II EDS provides a number of precompiled newlib implementations. The provided libraries are precompiled with every viable combination of the GCC compiler flags shown in [Table 6](#).

When you create a BSP with a precompiled newlib, the Nios II SBT selects the newlib matching your BSP's compiler settings. When you create a custom newlib, you must ensure that the compiler flags listed in [Table 6](#) match your BSP's settings.

**Table 6.** GCC Compiler Options for Newlib

Option Name	Purpose
-pg	Link for profiling with gprof
-EB	Generate big-endian code
-mstack-check	Enable stack checking
-mno-hw-mul	Disable use of the <code>mul</code> family of instructions
-mhw-mulx	Enable use of the <code>mulx</code> family of instructions
-mcustom-fpu-cfg	Use a floating point custom instruction



The Nios II-specific compiler flag `-mcustom-fpu-cfg` requires the Nios II processor core to be implemented with the floating-point custom instruction as specified in the flag argument. The compiler flag can have one of the following two argument values:

- `-mcustom-fpu-cfg=60-1`—Use the Nios II floating-point custom instruction without divider
- `-mcustom-fpu-cfg=60-2`—Use the Nios II floating-point custom instruction with divider



For details about the Nios II-specific compiler flags `-mstack-check`, `-mno-hw-mul`, and `-mhw-mulx`, refer to “Altera Nios II Options” in *Using the GNU Compiler Collection (GCC)*, installed with the Nios II EDS. For details about the `-pg` compiler flag, refer to “Compiling a Program for Profiling” in *GNU Profiler*, installed with the Nios II EDS. To find the installed documentation, on the Windows Start menu, click **Programs > Altera > Nios II EDS <version> > Nios II <version> Documentation**, and then click **Literature**.

## Solution Status

This issue will be fixed in a future release of Nios II EDS documentation.

## Nios II IDE Online Help Expand Buttons Do Not Work

The expand text arrow and the **Show All** option in the online help do not work in Internet Explorer.

**Workaround**

In Internet Explorer, carry out the following actions:

1. Click the **Refresh/Show Current Topic** icon (yellow arrows icon at the top of the search pane). The table of contents appears with the selected topic highlighted.
2. Click the highlighted topic to refresh the browser frame. Expanded text works.

Alternatively, use Firefox 2.0.0.6.

**Solution Status**

Not fixed

**Hardware Abstraction Layer Errata**

This section describes in detail the Nios II Hardware Abstraction Layer issues.

**Missing Structure Member Errors in alt\_log\_printf.c with Small JTAG UART Driver**

In a BSP, if you enable the small JTAG UART driver (`altera_avalon_jtag_uart_driver.enable_small_driver`), and enable Altera logging (`hal.log_port`) using the JTAG UART as the log port, when you build the project, the compiler reports missing structure members in `alt_log_printf.c`. The project fails to build.

**Workaround**

To avoid this issue, execute the following steps:

1. In function `alt_log_jtag_uart_print_control_reg()` in `alt_log_printf.c`, insert the italicized code as shown in [Example 6](#).

**Example 6. ALT\_LOG\_PRINTF() Correction**


---

```
ALT_LOG_PRINTF(
    "%s SW CirBuf = %d, HW FIFO wspace=%d AC=%d WI=%d RI=%d WE=%d RE=%d\r\n",
    header,

    /* Beginning of inserted code */
    #ifndef ALTERA_AVALON_JTAG_UART_SMALL
        (dev->tx_out-dev->tx_in),
    #else
        0,
    #endif
    /* End of inserted code */

    space,ac,wi,ri,we,re);
```

---

2. Rebuild the project.

Alternatively, install the Altera Complete Design Suite version 11.0 or later.

**Solution Status**

Fixed in version 11.0 of the Nios II EDS

## Hardware Example Design Errata

This section describes in detail the Nios II EDS hardware example design issues.

### Quartus II Compilation Warnings for Nios II Stratix II 2S60 ROHS Example

You might see the following warnings if you try to compile the Nios II Stratix® II 2S60 ROHS example design, installed at `<Nios II EDS install path>/examples/vhdl/niosII_stratixII_2s60/standard` or downloaded from the Altera Wiki ([www.alterawiki.com](http://www.alterawiki.com)):

```
Warning (10541): VHDL Signal Declaration warning at\  
NiosII_stratixII_2s60_standard.vhd(59): used implicit default value for signal\  
"cpu_data_master_read_data_valid_NiosII_stratixII_2s60_standard_clock_0_in"\  
because signal was never assigned a value or an explicit default value. Use of\  
implicit default value may introduce unintended design optimizations.  
Warning (10542): VHDL Variable Declaration warning at\  
altera_europa_support_lib.vhd(340): used initial value expression for variable\  
"arg_copy" because variable was never assigned a value  
Warning (10542): VHDL Variable Declaration warning at\  
altera_europa_support_lib.vhd(344): used initial value expression for variable\  
"arg_length" because variable was never assigned a value
```

You can safely ignore these warnings.



The Nios II Stratix II 2S60 ROHS example is deprecated.

#### Workaround

None.

#### Solution Status

Not fixed.

## Software Example Errata

This section describes in detail the Nios II EDS software example issues.

### Networking Examples

If you are running a networking software example, you might be asked for a nine-digit number. You are directed to find this number on a sticker on your Nios development board, identified by the prefix **ASJ**. Not all Nios development boards have this sticker.

#### Workaround

If your Nios development board does not have a sticker with the letters **ASJ** followed by a nine-digit number, enter a unique nine-digit number when prompted. To avoid network address conflicts, ensure that this number is unique to each Nios board connected to your network.

#### Solution Status

Not fixed

## Flash Programmer Errata

This section describes in detail the Nios II EDS issues related to the flash programmer.

### elf2flash File Size Limit

The `elf2flash` utility supports `.elf` files up to approximately 24 MBytes in size. The `elf2flash` utility might fail on files larger than 24 MBytes, with the error message `java.lang.OutOfMemoryError`.

#### Workaround

Lower the number of symbols in your `.elf` file by turning off debug symbols.

Alternatively, specify less initialized data in the application.

#### Solution Status

Not fixed

## Hardware Simulation Errata

This section describes in detail the Nios II EDS issues related to hardware simulation.

### Missing .dat File Error Message: “Failed to open VHDL file”

When you simulate a Qsys hardware design in VHDL that contains the JTAG UART core, and you run the simulation using the `ld_debug` command, you might see the following error message:

```
# ** Error: (vsim-7) Failed to open VHDL file
"system_tb_system_inst_jtag_input_stream.dat" in r mode.
```

You can safely ignore this error, because it does not affect the `stdout` output of the JTAG UART.

This error message does not appear when simulating a hardware design in the Verilog HDL.

#### Workaround

Run the simulation using the `ld` command, and the error is not displayed.

Alternatively, ignore the error message.

#### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

### JTAG UART Interactive Window for Simulation Does Not Work

When you simulate a Qsys system, the JTAG UART interactive window might not work.

#### Workaround

There is no workaround.

### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

## Error “UNC paths are not supported” Launching ModelSim

If you launch the ModelSim®-Altera simulation software from a working directory that is mapped via a universal naming convention (UNC) path (a path that starts with // instead of drive letter), you receive the following error message in SOPC Builder: **UNC paths are not supported. Defaulting to Windows directory.** This error occurs because ModelSim is calling a command shell, which does not support UNC paths.

### Workaround

Map the UNC path to a drive letter and use the drive letter to reference the working directory in the launching shell.

### Solution Status

Not fixed

## Uninitialized .bss Variables in Simulation

If your program reads the value of an uninitialized .bss variable during HDL simulation, and the BSP (system library) is compiled with the **ModelSim only, no hardware support** property enabled in Nios II IDE, a warning appears about unfiltered data being 'x'. This warning appears because when this property is enabled, the code that clears the .bss memory region is omitted to speed up HDL simulation so this memory region is uninitialized. The .bss region contains global and static local variables that are not initialized by the application so they default to a value of zero. When the Nios II processor reads uninitialized variables, it displays a warning and converts any of the bits of the uninitialized data to zero which correctly mimics the effect of the missing .bss clearing code. The Hardware Abstraction Layer (HAL) code that executes before and after `main()` might use .bss variables, so these warnings might appear even if your application does not use the .bss section.

### Solution Status

Not fixed

## Host Platform Errata

This section describes in detail the Nios II EDS issues related to the host development platform.

### Nios II EDS Requires Administrative Permissions on Windows Vista and Windows 7

On the Windows Vista and Windows 7 operating systems, the Nios II EDS requires your user account to have administrative permissions.

Attempts to write to a directory other than the user home directory might fail, especially writing to an installation directory. For example, you might be unable to create a software project under an example design directory. Error messages might vary.

### Workaround

Obtain an administrator account on your workstation.

Alternatively, start Nios II EDS applications in administrator mode. For example, when launching the Nios II SBT for Eclipse, right-click **Nios II <version> Software Build Tools for Eclipse** and click **Run As Administrator**.

### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

## Cannot Launch Nios II SBT for Eclipse on Red Hat Linux

You might be unable to launch Nios II SBT for Eclipse on the Red Hat Linux operating system. This is an issue with the version of XULRunner in Eclipse 3.4. The issue is resolved in XULRunner 1.9.1, which is available with Eclipse 3.5.

### Workaround

Upgrade XULRunner to a newer version. To determine what version of XULRunner you have, type the following command at the command prompt:

```
xulrunner -v
```

To upgrade XULRunner using the **yum** software package manager, type the following command:

```
sudo yum update xulrunner
```

### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

## Windows/Cygwin: Nios II Processor Generation Failure

You might see the following error message when you generate your Nios II system in SOPC Builder:

```
Error: Generator program for module 'cpu_fpoint' did NOT run successfully
```

This error might occur on a Windows-based system when all of the following conditions are true:

- You have installed a version of Cygwin other than the one distributed with the Quartus II software.
- You launch the Quartus II software and SOPC Builder from a Nios II Command Shell.
- You enable the floating point custom instruction (FPCI) in the Nios II processor core.

### Workaround

Launch the Quartus II software and SOPC Builder from the Windows Start menu, and regenerate your system.

### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

## Windows Vista: Limited Support in Nios II EDS

The Quartus II software introduced Windows Vista (32-bit and 64-bit) support in version 7.2. However, several ensuing releases of the Nios II Embedded Design Suite support only the following platforms:

- Windows 2000
- Windows XP
- Windows XP (64)
- Windows Vista Business Edition (32-bit)
- SUSE 9 (32-bit)
- SUSE 9 (64-bit)
- Red Hat Linux version 3.0 (32-bit)
- Red Hat Linux version 3.0 (64-bit)
- Red Hat Linux version 4.0 (32-bit)
- Red Hat Linux version 4.0 (64-bit)

### Workaround

Upgrade to a more recent version of the Nios II EDS.

To see the current operating system support for the Altera Complete Design Suite tools, refer to the [Operating System Support](#) page of the Altera website.

### Solution Status

Fixed in version 8.1 of the Nios II EDS

## Nios II IDE Errata: Building Projects

This section describes in detail the issues related to building projects in the Nios II IDE.

### Nios II IDE Command-Line Tools Select Wrong Workspace on Linux

On Linux systems, the Nios II IDE command-line tools use the default Eclipse project workspace, regardless what workspace you are using in the IDE. The default workspace is at `$SOPC_KIT_NIOS2/eclipse/nios2-ide-workspace-<version>`.

This issue affects the following tools:

- `nios2-create-system-library`
- `nios2-create-application-project`
- `nios2-build-project`

- `nios2-import-project`
- `nios2-delete-project`

### Workaround

Explicitly supply the Nios II IDE command-line tools with a workspace location, by means of the `-data` command-line argument. The syntax of the `-data` argument is as follows:

```
-data <path to workspace>
```

The path to the workspace must be absolute, and must not contain whitespace. Aside from these restrictions, any valid file system path can be used for the workspace.

[Example 7](#) shows how to specify a workspace path.

#### Example 7. Providing a Non-Default Workspace Location in Linux

---

```
nios2-create-project -data $HOME/myworkspace <other arguments>↵
```

---

### Solution Status

Not fixed

## Nios II IDE Command-Line Tools Hang on Windows

On Windows systems, the Nios II IDE command-line tools are sometimes unable to locate the project workspace. When this happens, the tools might hang.

This issue potentially affects the following tools:

- `nios2-create-system-library`
- `nios2-create-application-project`
- `nios2-build-project`
- `nios2-import-project`
- `nios2-delete-project`

### Workaround

Explicitly supply the Nios II IDE command-line tools with a workspace location, by means of the `-data` command-line argument. The syntax of the `-data` argument is as follows:

```
-data <path to workspace>
```

The path to the workspace must be absolute, and must not contain whitespace. Aside from these restrictions, any valid file system path can be used for the workspace. The workspace shown in [Example 8](#) is the default workspace used by the Nios II IDE in version 9.0.

#### Example 8. Providing a Workspace Location

---

```
nios2-create-project -data c:/altera/90/nios2eds/\  
bin/eclipse/nios2-ide-workspace-9.0 <other arguments>
```

---

### Solution Status

Not fixed

## Nios II IDE Cannot Find stdio.h in Outline View

If you create a new project using the Nios II IDE and try to open the `stdio.h` file from the Outline view before building the project, the IDE displays the error message **No include files were found that matched that name.**

### Workaround

Build the project before attempting to open `stdio.h`.

### Solution Status

Not fixed

## Nios II IDE Hangs With UNC Project Path

In the **New Project** dialog box, if you turn on **Specify Location** and specify the path in UNC form, the IDE might hang.

### Workaround

Map the UNC path to a remote drive which looks like a Windows drive to the Nios II IDE.

### Solution Status

Not fixed

## Build Failure with Nios II Advanced Exceptions, MMU, and MPU

Projects created in the Nios II IDE for an SOPC Builder system containing a Nios II processor configured with advanced exceptions, the memory management unit (MMU), or the memory protection unit (MPU) fail to build, and generate the following error messages:

```
ERROR - Classic build flow for Nios II system library does not support
the Nios II \
    advanced exceptions.
Use the non-classic Nios II Board Support Package instead.
<timestamp> - (SEVERE) generate: java.lang.IllegalStateException: \
    java.lang.IllegalStateException: \
    com.altera.ingenuous.GTFElement.GTFElementErrorException: \
    <error> element in GTF script
make[1]: *** [system_description/./obj/system.h-t] Error 1
make: *** [system_project] Error 2
```

### Workaround

Create the software project with the Nios II SBT command-line development flow. Alternatively, use the Nios II SBT for Eclipse.

### Solution Status

Not fixed

## Build Command Not Functional for BSPs Created With the Nios II SBT

The build option in the Nios II IDE menu does not rebuild BSPs imported to the IDE.

### Workaround

The Nios II SBT for Eclipse can both build and debug projects created on the command line. The Nios II SBT for Eclipse is the preferred tool for debugging Nios II SBT projects.



For information about the Nios II SBT for Eclipse, refer to the *Getting Started with the Graphical User Interface* chapter of the *Nios II Software Developer's Handbook*.

In the Nios II IDE, you can build the BSP by building the associated application project.

### Solution Status

Not fixed

## Linker Errors with Dual-Port Memories

If your instruction master and data master ports are connected to the same dual-port memory and the ports have different addresses, your code fails to run or you experience a linker error. The Nios II IDE does not warn you of the addressing violation.

### Workaround

Assign the same address to both ports of the dual-port memory.

### Solution Status

Not fixed

## User-Managed BSP Settings Not Supported in Nios II IDE

For projects created with the Nios II SBT and imported to the Nios II IDE, the IDE configuration settings have no effect.

For example, objdump, compiler, and linker settings made in the IDE are ignored. This behavior occurs because Nios II SBT projects are not IDE-managed projects. In addition, the make-related preferences do not pertain to imported Nios II SBT projects. The IDE ignores these options during the build process.

### Workaround

Make these settings in the project's makefile.

### Solution Status

Not fixed

## URL Project Location Causes Project Creation Error

When you try to create a new project in an existing workspace, you might see an error dialog box saying:

```
Project cannot be created. Reason: Internal Error
```

This error might occur if the path to any project in the workspace is a URL location, for example `file:/F:/Design`. To view the path, right-click on the project and select **Properties**.

### Workaround

Import your existing application and system library projects to a new workspace.

### Solution Status

Not fixed

## Compilation Error with Separate Exception Stack Option

Choosing the **Use a separate exception stack option** might cause the following compilation error when building a project:

```
VARIABLE %STACK_POINTER%
```

This error occurs if the exception stack is larger than the memory available for it.

### Workaround

On the system library properties page for the project, turn off the separate exception stack or reduce the **Maximum exception stack size** setting.

### Solution Status

Not fixed

## Incorrect Stack and Heap Free Space Report

The makefile reports an incorrect number of bytes free for the stack and heap, if the heap and stack are in different memory regions.

### Workaround

No workaround available.

### Solution Status

Not fixed

## Nios II IDE Reports Problems Without Displaying Error in Console

When building a project, the Nios II IDE reports problems, but the build output in the console does not contain any errors.

The Nios II IDE incorrectly reports some linker warnings as errors, with a dialog box saying **Errors exist in a required project**. The Dhrystone software example exhibits this behavior, and recompiling the project again makes the issue go away.

**Workaround**

If the Console output does not contain errors, then the project built correctly. On subsequent builds, the linker step is skipped and the errors do not appear.

**Solution Status**

Not fixed

## Nios II IDE Errata: Debugging Projects

This section describes in detail the issues related to debugging projects in the Nios II IDE.

### Nios II IDE shows “Source not found” during debugging

When you are debugging a project in Nios II IDE and attempt to step into the `printf()` function, you might see an error message saying `Source not found`.

**Workaround**

Port your project to the Nios II SBT for Eclipse for future software development and debugging purposes, as described in the *Using the Nios II Integrated Development Environment* appendix of the *Nios II Software Developer's Handbook*.

**Solution Status**

Not fixed

### Method for Accessing MMU and MPU Registers in the Debugger

You might observe an error if you try to read or write an MMU or MPU register via the Nios II Debugger.

**Workaround**

To read an MPU region, execute the following steps:

1. Set region `INDEX` in the `MPUBASE` register.
2. Exit and reenter debug mode, that is, single step.
3. Set the `RD` bit in the `MPUACC` register.
4. Exit and reenter debug mode, that is, single step.
5. Read back `MPUBASE` for pertinent information.
6. Read back `MPUACC` for pertinent information.

For a system with an MMU or MPU, this workaround allows you to read and write the current values of the registers. However, you cannot use it to control MPU regions or MMU TLB entries.

The debug core copies the Nios II processor's register values to its internal memory when the processor enters debug mode. The debug core writes register values back to the processor only when the processor leaves debug mode. Therefore, if you attempt to set an MPU region with several consecutive values, only the last one, when leaving debug mode, is committed to the processor.

**Solution Status**

Not fixed

**IDE Cannot Display Imported Profiling Data**

If you create a software project in the Nios II SBT command line flow, generate profiling data to **gmon.out** in the Nios II command shell, and then import the project to the IDE, you cannot use the Profiling perspective to view the profiling data. When you attempt to view **gmon.out**, the IDE displays the following error message:

```
nios2-elf-gprof: ../: not in a.out format.
```

**Workaround**

Run `nios2-elf-gprof` from the Nios II command shell to generate a profiler report.

**Solution Status**

Not fixed

**Error Message when Downloading .elf File**

If the **Build Automatically** option is turned on in the IDE, you might get the following error when downloading a **.elf**:

```
"2 [main] sh 5736 fork: child 3892 - died waiting; \  
  for longjmp before initialization, errno 11"
```

The **Build Automatically** option is off by default, as recommended by the Eclipse help system.

**Workaround**

Turn off the **Build Automatically** option and download the **.elf** file again.

**Solution Status**

Not fixed

**Variable Casting Unsupported in ISS**

Casting variables in the Variables view in the Debug perspective when using the Nios II ISS might cause an exception dialog box to open.

This exception might occur if you select **Debug as ISS** in the Nios II IDE and try to cast variables via the Variables view.

**Workaround**

There is no workaround.

**Solution Status**

Not fixed

## Trace Debug Does Not Support Instruction-Related Exceptions

The instruction-related exception handler is not supported by the Nios II trace tools.

### Workaround

There is no workaround.

### Solution Status

Not fixed

## Trace Debug Does Not Support the JMPI Instruction

The JMPI instruction is not supported by the Nios II trace tools.

### Workaround

There is no workaround.

### Solution Status

Not fixed

## Cannot Locate Source Code in Driver Files Shared by Multiple Projects

If you hit a breakpoint in a driver file, and that driver file is shared with another project that is closed, the Nios II IDE might indicate that it cannot locate the source code.

### Workaround

Open the closed system library project and resume debugging.

### Solution Status

Not fixed

## Console Window Is Not Updated After ISS Error

After performing a **Run as ISS**, if you receive an ISS error in the console window, the console is not updated subsequently.

### Workaround

Close the console window after receiving an ISS error. A new console window opens when a new message is available.

### Solution Status

Not fixed

## ISS Fails on Designs Containing Triple Speed Ethernet MAC or SG-DMA Components

You receive an Internal Error when attempting to perform an ISS simulation of designs containing the Altera Triple Speed Ethernet media access control (MAC) or SG-DMA components because the Nios II ISS does not support these components.

### Workaround

Remove the Triple Speed Ethernet MAC and SG-DMA components from your system and perform ISS simulation on the simplified system. You can also simulate the design in ModelSim or test it on hardware.



Before removing the Triple Speed Ethernet MAC and SG-DMA components, make a copy of the unmodified system to ensure that you can return to the original configuration.

### Solution Status

Not fixed

## Memory Window Sets Control Register Values Incorrectly

The memory window might incorrectly set values in memory-mapped control registers. For example, writing 0x1234 to a byte addressed register results in the value 0x3434 being stored in the register. The memory window shows this incorrect value.

### Workaround

Use the GNU debugger (GDB) console window in the IDE, instead of the memory window, to write to the registers. For example, type the following command:

```
set {int} <register address>=0x1234←
```



You must refresh the memory window for it to correctly display the target value.

### Solution Status

Not fixed

## Programs That Interact With a Terminal Console on Windows Do Not Work

Programs with this behavior work in version 6.0 and earlier, but do not work in Nios II IDE version 6.1 and later.

The Eclipse platform in version 6.1 and later of the IDE (on Windows only) sends the string `\r\n` instead of just `\n` when running or debugging using the Terminal. This behavior can break existing software designs, and it is inconsistent with `nios2-terminal`, which still just sends `\n`.

### Workaround

Change the software running on the Nios II processor to parse for `\r\n` as well as `\n`.

### Solution Status

Not fixed

## “Run as ModelSim” in the Nios II IDE Fails

The **Run as ModelSim** command might fail on launch configurations created in version 7.0 or earlier of the IDE. This problem does not occur for new launch configurations.

**Workaround**

Select a location for the ModelSim tool from the launch configuration dialog box. You can use the **Browse** button next to the **ModelSim path** group, or type in a path to the ModelSim directory (for example `c:/altera/71/modelsim_ae/win32aloem`).

**Solution Status**

Not fixed

**The Restart Command on the Run Menu Does Not Work**

The **Restart** command on the **Run** menu does not work.

**Workaround**

Stop the program, then debug it again. If the debugger is hung in an endless loop, use the following **bash** alias to break the target, then stop it:

```
alias break="kill -2 `ps -a | grep nios2-elf-gdb | cut -f6 -d' '"`"
```

**Solution Status**

Not fixed

**Watchpoints Do Not Work on Certain Variables**

Watchpoints do not work on a variable whose size is not 32 bits.

**Workaround**

Change the types of global and static local variables to `int`, `long`, or `unsigned long` before setting watchpoints on them.

**Solution Status**

Not fixed

**Nios II IDE Errata: Navigating Projects**

This section describes in detail the issues related to navigating projects in the Nios II IDE.

**Nios II IDE Freezes While Displaying the Splash Screen**

After clicking **Switch Workspace** on the File menu on a Windows machine, a Nios II IDE splash screen appears. Unfortunately, this splash screen obscures the dialog box that asks you to specify the new workspace. As a result, the IDE appears to freeze.

**Workaround**

Press Alt-Tab to switch applications. Two relevant application icons appear: an Eclipse icon associated with the splash screen and a Nios II IDE icon associated with the **Workspace** dialog box. Select the Nios II icon to bring the dialog box to the foreground.

### Solution Status

Not fixed

## Internal Error When Double-Clicking on a Large Objdump File

On Windows when opening a large **objdump** file in the Nios II IDE, you might get the following error message:

```
Unable to create this part due to an internal error.  
Reason for the failure: Editor could not be initialized.
```

### Workaround

Adjust the Windows launch arguments for the Nios II IDE editor. Perform the following steps:

1. On the Windows Start menu, browse to the **Nios II EDS** program icon, right-click it, then click **Properties**. The **Windows Properties** dialog box appears.
2. In the **Target** field, append "vmargs -Xmx1024m" to the end of the path to the Nios II IDE executable. For example:

```
C:\altera\72\nios2eds\bin\eclipse\nios2-ide.exe -vmargs -Xmx1024m
```

### Solution Status

Not fixed

## C/C++ Scanner Does Not Support Certain C/C++ Constructs

The C/C++ scanner performs C/C++ Search, navigation, open declaration, and parts of content assist. Due to limitations of the C/C++ scanner, these features do not work with C code constructs not supported by the C++ language. An example is functions that take a function pointer as an argument.

### Workaround

If the C/C++ Search fails, use the File Search facility.

### Solution Status

Not fixed

## Nios II SBT Errata

This section describes in detail the issues in the Nios II SBT.

### Incorrect IRQ Information in system.h

For Qsys hardware designs, the Vectored Interrupt Controller (VIC) is not supported properly by the Nios II SBT. The SBT publishes incorrect information to the **system.h** file. The **ALT\_ENHANCED\_INTERRUPT\_API\_PRESENT** definition is missing, and IRQ priorities are defined as -1.

### Workaround

Use one of the following techniques to work around this issue:

- Create a set of `#define` statements in a new header (`.h`) file. Ensure that the following information is defined properly:

```
#define ALT_ENHANCED_INTERRUPT_API_PRESENT
#define <component>_IRQ <interrupt priority from Qsys system>
```

This technique is recommended because your definitions are preserved if you regenerate the BSP.

- Manually code the correct `#define` statements in `system.h`. However, if you use this technique, you will lose your changes every time the BSP is regenerated and `system.h` is updated.
- Generate your system with SOPC Builder.
- Use the internal interrupt controller.

### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

## Nios II SBT Creates Spurious BSP for System with MMU

The Nios II SBT is not intended to generate BSPs for the Nios II MMU. The SBT incorrectly lets you create a BSP for a Qsys-generated Nios II system with an MMU. This BSP includes a `system.h` file with incorrect MMU information.

You cannot use the Nios II SBT to create a BSP for the Nios II MMU.

### Affected Configurations

Qsys designs with the Nios II MMU

### Workaround

None.

### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

## Error Running Nios II Project: 'Downloading ELF Process failed'

If the Nios II processor's `cpu.data_master` port is not connected to all program memories (memories to which the `.elf` file is downloaded) the software project fails to run on Nios II hardware.

Failure to connect `cpu.data_master` to all program memories is a design error that the Nios II SBT does not detect.

### Workaround

Connect `cpu.data_master` to all program memories.

### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

## BSP Editor Does Not Show Command-Line Help

The following commands in the Nios II Command Shell should display command-line help:

- `nios2-bsp-editor --help`
- `nios2-bsp-editor --extended-help`

Instead, these commands launch the BSP Editor.

### Workaround

For help with the BSP Editor, refer to “Using the BSP Editor” in the *Getting Started with the Graphical User Interface* chapter of the *Nios II Software Developer’s Handbook*.

### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

## BSP Not Updated for Memory Size Changes in SOPC Builder

If you change the size of a memory in SOPC Builder, the memory region size in any previously created BSP is no longer correct. Regenerating the BSP does not update the BSP’s memory region size.

### Workaround

In the BSP Editor, on the **Linker Script** tab, you can correct the memory region size either of the following ways:

- Edit the memory region size manually.
- Click **Restore Defaults** to rerun the default Tcl script. The default Tcl script reads the updated memory region size from the SOPC information file (**.sopcinfo**) and updates the BSP.



For detailed information about keeping your BSP consistent with changes in the underlying SOPC Builder system, refer to “Revising Your BSP” in the *Nios II Software Build Tools* chapter of the *Nios II Software Developer’s Handbook*.

### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

## Build Errors on Interrupt API Calls

You might observe build errors if your application project installs an ISR that calls the `alt_irq_register()` function.

The Nios II EDS version 9.1 includes support for an optional External Interrupt Controller (EIC) interface on the Nios II processor. To support the EIC interface, the HAL includes an enhanced interrupt API.

When you create a BSP, the SBT determines which interrupt API(s) the device drivers in your system support. If all registered drivers in the BSP identify themselves as supporting the enhanced API, the SBT implements the enhanced API. All Altera device drivers in version 9.1 and later support the enhanced API.

When the enhanced API is implemented, the legacy interrupt API, including `alt_irq_register()`, is not available. Therefore, if the application code contains a call to a legacy API function, a linker error occurs.

This issue might affect application projects that call `alt_irq_register()` or other legacy interrupt API functions directly, rather than depending on drivers in the BSP for interrupt support.

If your Nios II application project's source code registers an ISR using `alt_irq_register()`, or includes an ISR, your application might fail to compile in the Nios II EDS version 9.1, due to undefined references to `alt_irq_register()`, or to a change to the ISR function prototype.

### Workaround

Modify your application code to use the new enhanced interrupt API. To use the enhanced API, you must modify several function calls and all ISR function prototypes.



For information about supporting the enhanced interrupt API, refer to the *Exception Handling* chapter of the *Nios II Software Developer's Handbook*, or to *AN 595: Vectored Interrupt Controller Usage and Applications*.



You must upgrade to the enhanced API if you wish to use an EIC in your hardware design to accelerate interrupt response time. The enhanced API also works with the Nios II processor's internal interrupt controller.

### Solution Status

Not fixed

## SBT Fails if Nios II EDS is Installed in a Path Containing Spaces

The Nios II Command Line SBT fails if you install the Nios II EDS in a path containing spaces.

### Workaround

Reinstall the Nios II EDS to a path that does not contain spaces.

### Solution Status

Not fixed

## User-Managed BSP Settings Not Supported in Nios II IDE

This issue is described on [page 37](#).

## Peripheral Errata

This section describes in detail the Nios II EDS issues related to peripheral components.

### System Timestamp for System ID Peripheral Is Always 0

When the System ID Peripheral is not added to the top level of Qsys system, the system timestamp for the System ID peripheral is always 0.

#### Workaround

Remove the System ID Peripheral from any of the Qsys subsystems if you have them and add the System ID Peripheral only in the top level of Qsys system.

#### Solution Status

This issue will be fixed in a future release of the Nios II EDS.

### Unaligned Transfers of Small Payloads Fail on SG-DMA

The Scatter Gather DMA SOPC Builder peripheral does not correctly handle unaligned transfers with small payloads. A payload length smaller than the data width causes erroneous data transfers.

#### Workaround

Avoid using DMA devices to transfer small payloads.

If absolutely necessary, for a 32-bit SG-DMA, a minimum length of 4 bytes guarantees that data is transferred correctly.

#### Solution Status

Not fixed

### DMA Controller Always Busy in Burst Mode

The DMA controller component (`altera_avalon_dma`), when enabled for burst transactions, does not perform transfers at widths other than its full data width. The DMA controller is always busy.

#### Workaround

When bursting is enabled, the DMA controller must be programmed to perform transactions at its full data width.

#### Solution Status

Not fixed

### Non-System-Wide Reset Can Cause Improper Initialization of Mailbox Core

The `altera_avalon_mailbox` peripheral might not be initialized properly when a soft (non-system-wide) reset occurs. In this condition, mailbox contents (read and write pointers) are not reinitialized and might show potentially stale data.

**Workaround**

Ensure that a system-wide reset event occurs by asserting the `reset_n` input to the SOPC Builder system containing the mailbox. This resets all peripherals and Nios II processors in the system.

**Solution Status**

This issue will be fixed in a future release of the Nios II EDS.

## Target Software Errata

This section describes in detail the Nios II EDS issues related to target software packages.

### EIC-Based Nios II System Crashes With NicheStack

When you attempt to run software based on the NicheStack TCP/IP Stack - Nios II Edition on a hardware design incorporating an external interrupt controller such as the VIC, the Nios II system crashes during initialization, with unpredictable results.

**Workaround**

There is no workaround.

**Solution Status**

This issue will be fixed in a future release of the Nios II EDS.

### stdio Does Not Work with MicroC/OS-II and Small C Library

`stdin`, `stdout`, and `stderr` do not work in MicroC/OS-II applications built with the Small C library option.

**Workaround**

Disable the small C library option.

**Solution Status**

Not fixed

### cout From MicroC/OS-II Task Does Not Send Data to stdout

If neither `printf()` or `cout` is used from `main()` before tasks are started, `cout` does not work from a task.

**Workaround**

Add the following C++ code to the beginning of `main()`:

```
std::ios_base::sync_with_stdio(false);
```

**Solution Status**

Not fixed

## Toolchain and Utilities Errata

This section describes in detail the Nios II EDS issues related to the Nios II and GNU compiler toolchains, including tools such as `gcc`, `gdb`, and `sof2flash`.

### **nios2-download Cannot Find JTAG Instance IDs**

Because Qsys uses different instance naming conventions compared to SOPC Builder, if you use the `--jdi` and `--cpu_name` flags with the `nios2-download` command, `nios2-download` cannot properly parse the Qsys instance names to find the correct JTAG debug module instance ID in the `.jdi` file.

#### **Design Impact**

Qsys designs with multiple JTAG debug modules

#### **Workaround**

Manually find the JTAG debug module ID in the `.jdi` file. Pass this value to `nios2-download` with the `--instance` flag.



The JTAG debug module ID might change after each Quartus II compilation.

#### **Solution Status**

Fixed in version 11.0 of the Nios II EDS

### **Warning Message: "'pragma\_reverse\_bitfields' attribute directive ignored"**

The Nios II GCC 4 tool chain does not support the C compiler `pragma` and flag for reverse bit fields. If you try to use the compiler `pragma reverse_bitfields`, you see the following warning:

```
'pragma_reverse_bitfields' attribute directive ignored
Similarly, the C compiler flag -mreverse-bitfields is unsupported.
```

#### **Workaround**

Use the GCC 3 tool chain.

#### **Solution Status**

This issue will be fixed in a future release of the Nios II EDS.

### **nios2-console Does Not Work in the GCC 4 Command Shell**

If you try to run the `nios2-console` command in the GCC 4 Command Shell, you see the following error message:

```
Can't locate strict.pm in @INC ...
```

#### **Workaround**

Use the GCC 3 Command Shell.

**Solution Status**

This issue will be fixed in a future release of the Nios II EDS.

**C++ Exceptions Unsupported in a Multi-Threaded Environment**

C++ exceptions are only supported in a single-threaded environment. They cannot be used in a multi-threaded environment such as MicroC/OS-II.



Also see [“C++ Exceptions Unsupported by the Nios II GCC 4 Toolchain”](#).

**Workaround**

In a multi-threaded environment, you need to guard C++ exceptions with semaphores.

**Solution Status**

Not fixed

**C++ Exceptions Unsupported by the Nios II GCC 4 Toolchain**

With the GCC 4 toolchain, C++ exceptions are not supported.



Also see [“C++ Exceptions Unsupported in a Multi-Threaded Environment”](#).

**Workaround**

If your single-threaded project requires C++ exceptions, use the GCC 3 toolchain.

**Solution Status**

This issue will be fixed in a future release of the Nios II EDS.

**memcpy() Optimization Misalignment**

When optimization is turned on (`-O1` or higher), if you use `memcpy()` and the source pointer is aligned to a 32-bit boundary, the compiler implements `memcpy()` with word-oriented instructions as part of the optimization process. This optimization technique causes unexpected results in your software if `memcpy()` is used on a misaligned address.

**Workaround**

Take steps to ensure that an optimized implementation of `memcpy()` is called only with aligned data pointers.

**Solution Status**

This issue will be fixed in a future release of the Nios II EDS.

**GNU Assembler Does Not Accept the `--defsym` Flag**

According the GNU documentation, you can set an assembler definition by using the `--defsym` flag, but it does not work in the following form: `--defsym MY_VAR=1`.

**Workaround**

There is no workaround.

**Solution Status**

Not fixed

**How to Contact Altera**

For the most up-to-date information about Altera products, refer to [Table 7](#).

**Table 7.** Contact Information

Contact (1)	Contact Method	Address
Technical support	Website	<a href="http://www.altera.com/support">www.altera.com/support</a>
Technical training	Website	<a href="http://www.altera.com/training">www.altera.com/training</a>
	Email	<a href="mailto:custrain@altera.com">custrain@altera.com</a>
Altera literature services	Email	<a href="mailto:literature@altera.com">literature@altera.com</a>
Non-technical support (General) (Software Licensing)	Email	<a href="mailto:nacomp@altera.com">nacomp@altera.com</a>
	Email	<a href="mailto:authorization@altera.com">authorization@altera.com</a>

**Note:**

(1) You can also contact your local Altera sales office or sales representative.






**Typographic Conventions**

[Table 8](#) shows the typographic conventions that this document uses.

**Table 8.** Typographic Conventions (Part 1 of 2)

Visual Cue	Meaning
<b>Bold Type with Initial Capital Letters</b>	Indicates command names, dialog box titles, dialog box options, and other graphical user interface (GUI) labels. For example, <b>Save As</b> dialog box. For GUI elements, capitalization matches the GUI.
<b>bold type</b>	Indicates directory names, project names, disk drive names, file names, file name extensions, dialog box options, software utility names, and other GUI labels. For example, <b>\qdesigns</b> directory, <b>d:</b> drive, and <b>chiptrip.gdf</b> file.
<i>Italic Type with Initial Capital Letters</i>	Indicates document titles. For example, <i>AN 519: Stratix IV Design Guidelines</i> .
<i>Italic type</i>	Indicates variables. For example, $n + 1$ . Variable names are enclosed in angle brackets (<>). For example, <file name> and <project name>.pof file.
Initial Capital Letters	Indicates keyboard keys and menu names. For example, Delete key and the Options menu.
“Subheading Title”	Quotation marks indicate references to sections within a document and titles of Quartus II Help topics. For example, “Typographic Conventions.”

**Table 8.** Typographic Conventions (Part 2 of 2)

Visual Cue	Meaning
Courier type	<p>Indicates signal, port, register, bit, block, and primitive names. For example, <code>data1</code>, <code>tDI</code>, and <code>input</code>. Active-low signals are denoted by suffix <code>n</code>. For example, <code>resetn</code>.</p> <p>Indicates command line commands and anything that must be typed exactly as it appears. For example, <code>c:\qdesigns\tutorial\chiptrip.gdf</code>.</p> <p>Also indicates sections of an actual file, such as a Report File, references to parts of files (for example, the AHDL keyword <code>SUBDESIGN</code>), and logic function names (for example, <code>TRI</code>).</p>
1., 2., 3., and a., b., c., and so on.	Numbered steps indicate a list of items when the sequence of the items is important, such as the steps listed in a procedure.
■ ■	Bullets indicate a list of items when the sequence of the items is not important.
	The hand points to information that requires special attention.
	A caution calls attention to a condition or possible situation that can damage or destroy the product or your work.
	A warning calls attention to a condition or possible situation that can cause you injury.
	The angled arrow instructs you to press Enter.
	The feet direct you to more information about a particular topic.



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[www.altera.com/support](http://www.altera.com/support)

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