

# Platform Specification Format Reference Manual

*Embedded Development Kit  
EDK*

EDK 10.1, Service Pack 3





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## Platform Specification Format Reference Manual EDK 10.1, Service Pack 3

The following table shows the revision history for this document.

Date	Revision
08/20/04	Initial release for EDK 6.3i.
02/15/05	EDK 7.1i release.
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01/08/07	EDK 9.1i release.
09/05/07	EDK 9.2i release.
01/14/07	EDK 10.1 release.
09/19/08	EDK 10.1 Service Pack 3 release.



# About This Guide

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## Guide Contents

This manual contains the following chapters:

- Chapter 1, “Introduction”
- Chapter 2, “Microprocessor Hardware Specification (MHS)”
- Chapter 3, “Microprocessor Peripheral Definition (MPD)”
- Chapter 4, “Peripheral Analyze Order (PAO)”
- Chapter 5, “Black-Box Definition (BBD)”
- Chapter 6, “Microprocessor Software Specification (MSS)”
- Chapter 7, “Microprocessor Library Definition (MLD)”
- Chapter 8, “Microprocessor Driver Definition (MDD)”
- Chapter 9, “Xilinx Board Description (XBD) Format”
- Appendix A, “Glossary”

## Additional Resources

To find additional documentation, see the Xilinx website:

<http://www.xilinx.com/support/documentation/index.htm>.

The following table lists some of the resources you can access from this website. You can also directly access these resources using the provided URLs.

Resource	Description/URL
EDK Home	Embedded Development Kit home page, FAQ, and tips. <a href="http://www.xilinx.com/ise/embedded_design_prod/platform_studio.htm">http://www.xilinx.com/ise/embedded_design_prod/platform_studio.htm</a>
EDK Examples	A set of complete EDK examples. <a href="http://www.xilinx.com/ise/embedded/edk_examples.htm">http://www.xilinx.com/ise/embedded/edk_examples.htm</a>
Tutorials	Tutorials covering Xilinx design flows from design entry to verification and debugging <a href="http://www.xilinx.com/support/techsup/tutorials/index.htm">http://www.xilinx.com/support/techsup/tutorials/index.htm</a>

Resource	Description/URL
Answer Browser	To search the Answer Database of silicon, software, and IP questions and answers, or to create a technical support WebCase, see the Xilinx website at: <a href="http://www.xilinx.com/support/mysupport.htm">http://www.xilinx.com/support/mysupport.htm</a>
Application Notes	For descriptions of device-specific design techniques and approaches, click the <b>Doc Type</b> tab on the following web page: <a href="http://www.xilinx.com/support/documentation/index.htm">http://www.xilinx.com/support/documentation/index.htm</a>
Data Sheets	For device-specific information on Xilinx device characteristics, including readback, boundary scan, configuration, length count, and debugging, click the <b>Doc Type</b> tab on the following web page: <a href="http://www.xilinx.com/support/documentation/index.htm">http://www.xilinx.com/support/documentation/index.htm</a>
Problem Solvers	Interactive tools that allow you to troubleshoot your design issues: <a href="http://www.xilinx.com/support/troubleshoot/psolvers.htm">http://www.xilinx.com/support/troubleshoot/psolvers.htm</a>
GNU Manuals	The entire set of GNU manuals may be found at: <a href="http://www.gnu.org/manual">http://www.gnu.org/manual</a>

## Conventions

This document uses the following conventions. An example illustrates each convention.

### Typographical

The following typographical conventions are used in this document:

Convention	Meaning or Use	Example
Courier font	Messages, prompts, and program files that the system displays	<code>speed grade: - 100</code>
<b>Courier bold</b>	Literal commands that you enter in a syntactical statement	<b>ngdbuild</b> <i>design_name</i>
<b>Helvetica bold</b>	Commands that you select from a menu	<b>File → Open</b>
	Keyboard shortcuts	<b>Ctrl+C</b>

Convention	Meaning or Use	Example
<i>Italic font</i>	Variables in a syntax statement for which you must supply values	<b>ngdbuild</b> <i>design_name</i>
	References to other manuals	See the <i>Development System Reference Guide</i> for more information.
	Emphasis in text	If a wire is drawn so that it overlaps the pin of a symbol, the two nets are <i>not</i> connected.
Square brackets [ ]	An optional entry or parameter. However, in bus specifications, such as <b>bus [7:0]</b> , they are required.	<b>ngdbuild</b> [ <i>option_name</i> ] <i>design_name</i>
Braces { }	A list of items from which you must choose one or more	<b>lowpwr</b> = { <b>on</b>   <b>off</b> }
Vertical bar	Separates items in a list of choices	<b>lowpwr</b> = { <b>on</b>   <b>off</b> }
Vertical ellipsis . . .	Repetitive material that has been omitted	IOB #1: Name = QOUT' IOB #2: Name = CLKIN' . . .
Horizontal ellipsis ...	Repetitive material that has been omitted	<b>allow block</b> <i>block_name</i> <i>loc1 loc2 ... locn;</i>

## Online Documents

The following conventions are used in this document:

Convention	Meaning or Use	Example
Blue text	Cross-reference link to a location in the current document	See the section “ <a href="#">Additional Resources</a> ” for details. Refer to “ <a href="#">Title Formats</a> ” in <a href="#">Chapter 1</a> for details.
<a href="#">Blue, underlined text</a>	Hyperlink to a website (URL)	Go to <a href="http://www.xilinx.com">http://www.xilinx.com</a> for the latest speed files.





# Table of Contents

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## Preface: About This Guide

Guide Contents .....	5
Additional Resources .....	5
Conventions .....	6
Typographical .....	6
Online Documents .....	7

## Chapter 1: Introduction

Files .....	15
BBD - Black Box Definition .....	15
MDD - Microprocessor Driver Definition .....	15
MHS - Microprocessor Hardware Specification .....	15
MPD - Microprocessor Peripheral Definition .....	16
MSS - Microprocessor Software Specification .....	16
MLD - Microprocessor Library Definition .....	16
PAO - Peripheral Analyze Order .....	16
XBD - Xilinx Board Definition .....	16
File and IP Naming Rules .....	17
Version Scheme .....	17
Version Setting for MHS and MSS .....	17
Version Setting for BBD, MPD, and PAO .....	17
Load Path .....	18
Peripheral and pcore Directory Structures .....	18
Using Versions .....	19
Creating Your IP .....	19
Is Your IP Pure HDL? .....	19
Is Your IP Only a Black-Box Netlist? .....	19
Is Your IP a Mixture of Black-Box Netlists and VHDL or Verilog? .....	19
Creating HDL Libraries for Your IP .....	19
Primary Library .....	19
Resource Library .....	20
Resource Libraries and PAO Files .....	20
Library File Locations .....	20
Verilog Include Directories .....	21
Format .....	21
Restrictions .....	21

## Chapter 2: Microprocessor Hardware Specification (MHS)

MHS Syntax .....	23
About the Syntax .....	23
Comments .....	24
Format .....	24
MHS Example .....	25
Bus Interface .....	27

Definition . . . . .	27
Example . . . . .	28
<b>Local Bus Interface</b> . . . . .	28
Local Bus Interface Keyword(s) . . . . .	28
<b>Global Parameter</b> . . . . .	28
Definition . . . . .	28
Global Parameter Keyword(s) . . . . .	28
<b>Local Parameter</b> . . . . .	29
Definition . . . . .	29
Local Parameter Keyword(s) . . . . .	29
<b>Global Port</b> . . . . .	29
Global Port Keyword Summary . . . . .	29
Global Port Keyword Definitions . . . . .	29
<b>Local Port</b> . . . . .	31
<b>Design Considerations</b> . . . . .	31
Defining Memory Size . . . . .	31
Power Signals (net_gnd/net_vcc) . . . . .	32
Unconnected Ports . . . . .	32
Constant Assignments . . . . .	32
Concatenation . . . . .	32
Internal vs. External Signals . . . . .	33
External Interrupt Signals . . . . .	33

## Chapter 3: Microprocessor Peripheral Definition (MPD)

<b>MPD Syntax</b> . . . . .	35
Definition . . . . .	35
Comments . . . . .	36
Format . . . . .	36
Assignment Commands . . . . .	36
Signal Direction . . . . .	36
MPD Example . . . . .	37
<b>Bus Interface</b> . . . . .	39
Definition . . . . .	39
Bus Interface Keyword Summary . . . . .	40
Bus Interface Keyword Definitions . . . . .	40
Bus Interface Naming Conventions . . . . .	42
<b>IO Interface</b> . . . . .	42
Definition . . . . .	42
IO Interface Keywords . . . . .	43
<b>Option</b> . . . . .	43
Definition . . . . .	43
Option Keyword Summary . . . . .	43
Option Keyword Definitions . . . . .	44
<b>Parameter</b> . . . . .	51
Definition . . . . .	51
Parameter Keyword Summary . . . . .	51
Parameter Keyword Definitions . . . . .	51
Parameter Naming Conventions . . . . .	56
<b>Port</b> . . . . .	57
Definition . . . . .	57

Port Keyword Summary . . . . .	57
Port Keyword Definitions . . . . .	58
Port Naming Conventions . . . . .	63
Global Ports . . . . .	63
Slave DCR Ports . . . . .	63
Slave LMB Ports . . . . .	64
Master PLB Ports . . . . .	64
Slave PLB Ports . . . . .	65
<b>Reserved Parameters . . . . .</b>	<b>67</b>
Reserved Parameter Names Summary . . . . .	67
Reserved Parameter Descriptions . . . . .	67
<b>Reserved Port Connections . . . . .</b>	<b>69</b>
Clock and Reset Ports . . . . .	69
Slave LMB Ports . . . . .	70
Master PLB Ports . . . . .	70
Slave PLB Ports . . . . .	71
<b>Design Considerations . . . . .</b>	<b>71</b>
Unconnected Ports . . . . .	71
Scalable Data Path . . . . .	72
MPD Example . . . . .	72
Interrupt Signals . . . . .	72
Tri-state (InOut and Output) Signals . . . . .	72
Tri-state (InOut) With Single-Bit Enable . . . . .	74
Tri-state (InOut) With Multi-Bit Enable . . . . .	74
Tri-state (In/Out) With Single-Bit Enable With Freely Named Ports . . . . .	75
Tri-state (InOut) With Multi-Bit Enable With Freely Named Ports . . . . .	75
Tri-state (Output) With Single-Bit Enable . . . . .	76
Tri-state (Output) With Multi-Bit Enable . . . . .	76
Tri-state (Output) With Single-Bit Enable With Freely Named Ports . . . . .	76
Tri-state (Output) With Multi-Bit Enable With Freely Named Ports . . . . .	77

## Chapter 4: Peripheral Analyze Order (PAO)

<b>PAO Format . . . . .</b>	<b>79</b>
Format . . . . .	79
Comments . . . . .	80
<b>Verilog Include Directories . . . . .</b>	<b>80</b>
Format . . . . .	80
Restrictions . . . . .	80
<b>PAO Example . . . . .</b>	<b>81</b>

## Chapter 5: Black-Box Definition (BBD)

<b>BBD Format . . . . .</b>	<b>83</b>
Comments . . . . .	83
Lists . . . . .	83
Common Repository Library . . . . .	84
<b>BBD Examples . . . . .</b>	<b>84</b>
File Selection Without Options . . . . .	84
Multiple File Selections Without Options . . . . .	84
File Selection With Options . . . . .	84
File Selection With Common Repository Library . . . . .	84

## Chapter 6: Microprocessor Software Specification (MSS)

Overview .....	85
Additional Resources .....	85
<b>TMSS Format</b> .....	85
MSS Keywords .....	86
Requirements .....	86
MSS Example .....	86
<b>Global Parameters</b> .....	88
PSF Version .....	88
Parameter INT_HANDLER .....	88
<b>Instance-Specific Parameters</b> .....	88
OS, Driver, Library, and Processor Block Parameters Summary .....	88
OS, Driver, Library, and Processor Block Parameters Definitions .....	88
MDD/MLD Specific Parameters .....	91
OS-Specific Parameters Summary .....	91
Processor-Specific Parameter Summary .....	91
Processor-Specific Parameter Definitions .....	92

## Chapter 7: Microprocessor Library Definition (MLD)

Overview .....	95
Requirements .....	95
Additional Resources .....	96
Library Definition Files .....	96
<b>MLD Format Specification</b> .....	96
MLD File Format Specification .....	96
Parameter Description Section .....	96
Tcl File Format Specification .....	96
DRC Section .....	97
Generation Section .....	97
Examples .....	97
Example: MLD File for a Library .....	97
Example: Tcl File of a Library .....	98
Example: MLD File for an OS .....	99
Example: Tcl File of an OS .....	99
<b>MLD Parameter Description Section</b> .....	100
Conventions .....	100
Comments .....	100
OS or Library Definition .....	100
MLD or MDD Keyword Summary .....	101
MLD or MDD Keyword Definitions .....	101
<b>Design Rule Check (DRC) Section</b> .....	106
<b>Library Generation (Generate) Section</b> .....	106

## Chapter 8: Microprocessor Driver Definition (MDD)

Overview .....	107
Requirements .....	107
Additional Resources .....	108
Driver Definition Files .....	108

<b>MDD Format Specification</b> .....	108
MDD File Format Specification .....	108
Tcl File Format Specification .....	109
DRC Section .....	109
Generation Section .....	109
Example .....	109
MDD: File Example .....	109
Example: Tcl File .....	111
<b>MDD Parameter Description</b> .....	111
Conventions .....	111
Comments .....	111
Driver Definition .....	112
MDD Keyword Summary .....	112
MDD Keyword Definitions .....	112
<b>Design Rule Check (DRC) Section</b> .....	117
<b>Driver Generation (Generate) Section</b> .....	117

## Chapter 9: Xilinx Board Description (XBD) Format

<b>Overview</b> .....	119
<b>XBD Syntax</b> .....	120
Comments in XBD .....	120
Format .....	120
Module Definitions .....	120
Assignment Commands .....	121
XBD Example .....	121
<b>Global Attribute Commands</b> .....	122
Global Attribute Command Summary .....	122
Global Attribute Command Definitions .....	122
<b>Local Attribute Commands</b> .....	123
Local Attribute Command Summary .....	123
Local Attribute Command Definitions .....	123
<b>Local Parameter Commands</b> .....	124
<b>Local Parameter Subproperties</b> .....	124
<b>Local Port Commands</b> .....	125
<b>Local Port Subproperties</b> .....	125
Local Port Subproperty Summary .....	125
Local Port Subproperty Definitions .....	126
<b>Associating IPs with IO_INTERFACE in XBD</b> .....	127
<b>Bridging IP with IO_INTERFACE</b> .....	129
<b>XBD Load Path</b> .....	129
<b>BSB Restrictions</b> .....	130
<b>Existing Xilinx IO Types</b> .....	131

## Appendix A: Glossary .....

**133**



# Introduction

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EDK tools are designed to operate in a data-driven manner. There are various meta-data files that capture information, for example, about various IPs, drivers, and software libraries being used in the EDK tools. Files are also used to capture both hardware and software aspects of your design information. These are ASCII files. The set of all these meta-data formats is referred to as the Platform Specification Format or PSF.

This chapter contains the following sections:

- “Files”
- “File and IP Naming Rules”
- “Load Path”
- “Creating Your IP”
- “Creating HDL Libraries for Your IP”
- “Verilog Include Directories”

## Files

### BBD - Black Box Definition

The Black Box Definition (BBD) file manages the file locations of optimized hardware netlists for the black-box sections of your peripheral design.

Refer to [Chapter 5, “Black-Box Definition \(BBD\),”](#) for more information.

### MDD - Microprocessor Driver Definition

An MDD file contains directives for customizing software drivers.

Refer to [Chapter 8, “Microprocessor Driver Definition \(MDD\),”](#) for more information.

### MHS - Microprocessor Hardware Specification

The Microprocessor Hardware Specification (MHS) file defines the hardware component. You supply an MHS file as an input to the Platform Generator (Platgen) tool.

Refer to [Chapter 2, “Microprocessor Hardware Specification \(MHS\),”](#) for more information.

## MPD - Microprocessor Peripheral Definition

The Microprocessor Peripheral Definition (MPD) file defines the interface of the peripheral.

Refer to [Chapter 3, “Microprocessor Peripheral Definition \(MPD\),”](#) for more information.

## MSS - Microprocessor Software Specification

You supply an MSS file as an input to the Library Generator (Libgen). The MSS file contains directives for customizing libraries, drivers, and file systems.

Refer to [Chapter 6, “Microprocessor Software Specification \(MSS\),”](#) for more information.

## MLD - Microprocessor Library Definition

An MLD file contains directives for customizing software libraries and operating systems.

Refer to [Chapter 7, “Microprocessor Library Definition \(MLD\)”](#) for more information.

## PAO - Peripheral Analyze Order

A PAO (Peripheral Analyze Order) file contains a list of HDL files that are needed for synthesis and defines the analyze order for compilation.

Refer to [Chapter 4, “Peripheral Analyze Order \(PAO\),”](#) for more information.

## XBD - Xilinx Board Definition

An XBD file contains a definition of logical interfaces present on a board and how they are connected to the FPGA. Refer to [Chapter 9, “Xilinx Board Description \(XBD\) Format,”](#) for more information.



## File and IP Naming Rules

File and IP names must be all lower-case to ensure consistency across the following:

- OS: UNIX (case-sensitive) vs. Win (case-insensitive)
- HDL: Verilog (case-sensitive) vs. VHDL (case-insensitive)

A lower-case naming convention is used to deal with the above combinations. For example: MYCORE\_v2\_1\_0 and mycore\_v2\_1\_0 would mean two different files in UNIX, whereas in Windows, they would be the same.

Assembly of lower-level cores into the top-level are merged by name reference. Therefore, it is important that names match.

### Version Scheme

Form of the version level is X.Y.Z

- X - major revision
- Y - minor revision
- Z - patch level

### Version Setting for MHS and MSS

In the body of the MHS and MSS file, add the following statement:

```
PARAMETER VERSION = 2.1.0
```

The version is specified as a literal of the form 2.1.0.

### Version Setting for BBD, MPD, and PAO

The version level is concatenated to the base name of the data files. The literal form of the version level is vX\_Y\_Z.

- *<ipname>*\_vX\_Y\_Z.mpd
- *<ipname>*\_vX\_Y\_Z.bbd
- *<ipname>*\_vX\_Y\_Z.pao
- *<ipname>*\_vX\_Y\_Z.mdd























































































































































































































































































