DSP/BIOS™ Link

Platform Guide

1.65.00.03

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Platform Support Products

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Read This First

About This Manual

This document describes platform specific information need for DM6437 and DM648 PCI DSPs.

How to Use This Manual

This document includes the following chapters:

Please go through the Release Notes document available in the release package before starting the installation.

Notation of information elements

The document may contain these additional elements:

	Warning
!	This is an example of warning message. It usually indicates a non-recoverable change.

	Caution
!	This is an example of caution message.

	Important
!	This is an example of important message.

	Note
!	This is an example of additional note. This usually indicates additional information in the current context.

> | **Tip**
> |
> | This is an example of a useful tip.

If You Need Assistance

For any assistance, please send an mail to software support.

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Platform Guide for DM648

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1.1. Introduction

1.1.1. Purpose and Scope

DSP/BIOS™ LINK is foundation software for the inter-processor communication across the GPP-DSP boundary. It provides a generic API that abstracts the characteristics of the physical link connecting GPP and DSP from the applications. It eliminates the need for customers to develop such link from scratch and allows them to focus more on application development.

This document provides the users necessary information to install DSP/BIOS™ LINK on the development host.

This document corresponds to the product release Version 1.65.00.03 dated JUL 12, 2010.

1.1.2. Terms and Abbreviations

CCS	Code Composer Studio
IPC	Inter Processor Communication
GPP	General Purpose e.g. ARM
DSP	Digital Signal Processor e.g. DM648
DSPLink	A generic term used for DSP/BIOS™ Link. It appears in italics in all usages
CGTools	Code Gen Tools, e.g. Compiler, Linker, Archiver

Table 1.1. Terms and Abbreviations

1.1.3. References

1	Evaluation Module (EVM) for the DM648 Quick Start Installation Guide

Table 1.2. References

1.2. Configuring CCS

1.2.1. Configuring CCS for DM648

CCS 3.3 can be used for working with DM648. It may need to be configured to use XDS510 debugger with DM648.

1.3. ADDITIONAL INFORMATION

1.3.1. Device ID Conflict in DM648EVM

DM648 EVM prior to V 1.1 uses 0xb001 as PCI device id.But after and including 1.1 verison EVMs uses 0xb003 as PCI device id. DSPLink uses 0xb003 as device id by default.

If DM648 EVM is using different device id the following changes needs to be done in the DSPLink source code.

• Find out the PCI device id of EVM board by referring hardware specifications documents. Or using lspci shell command, if the board is inserted in to PCI slot.

• Change the value of PCI_TI_DEVICE macro to new value in $dsplink/gpp/src/arch/DM648/pci/Linux/2.6.18/dm648_phy_pci.c, if device id is other than 0xb003.

• Rebuild the DSPLink.

1.3.2. Constraints

1.3.2. Constraints

Important

The name of the DSPLINKMEM section (defined in CFG_DM648_PCI.c) is fixed and should not be changed by the applications.

Important

DSPLINK by default uses memcpy instead of DMA on DM648 PCI platform.To use DM648 EDMA, pass --dspdma=1 commandline option along with other options , when configuring DSPLINK using dsplinkcfg.pl. For example
```
perl dsplinkcfg.pl --platform=LINUXPC --nodsp=1 --dspcfg_0=DM648PCI --
dspos_0=DSPBIOS5XX --gppos=RHEL4 --comps=ponslrmc --dspdma=1
```

Important

EDMA channel number used by DSPLINK can be selected by changing the ARG5 to a desired channel number to achieve DMA between host and DM648 over PCI interface.

Important

All the EDMA Channel, EDMA Param Entry, Interrupt Set/Pending bits, Event number and TCC filed values are based on the EDMA channel selected in the CFG_DM648_PCI.c. if Channel 0 is configured in the CFG_DM648_PCI.c file. The following EDMA configuration is used by DSPLINK.

- EDMA Channel 0.

- EDMA Param Entry 0

- Interrupt Set/Pending bits: Bit0

- Event number: 0 (I.e. Bit0 of these registers: ISER, ICR, IPR, EESR, ESR)

- TC value 0

- All other resources used by this channel are defaults/user programmed values (like queue etc).

1.3.3. DIP switch settings (SW2 and SW3)

For details about DIP switches refer to technical reference guide for DM648. The below mentioned settings are valid for DM648EVM production boards. Change the switch setting accordingly if the EVM is other than production board. (i.e alpha and beta boards)

The platform port for DSPLink on DM648 assumes PCI boot mode with out auto initialization.

SW2 DIP switch:

- SW2 [4-1] = 0001 (BOOTMODE)

- SW2 [5] = 1

- SW2 [6] = 0

- SW2 [7] = 0

- SW2 [8] = 0

- SW2 [10-9] = 00

SW3 DIP switch:

- SW3 [1] = 0

- SW3 [2] = 1

- SW3 [3] = 1

- SW3 [4] = 0

- SW3 [5] = 0

- SW3 [6] = 1

- SW3 [7] = 0

- SW3 [8] = 0

- SW3 [10-9] = 00

Platform Guide for DM6437

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2.1. Introduction

2.1.1. Purpose and Scope

DSP/BIOS™ LINK is foundation software for the inter-processor communication across the GPP-DSP boundary. It provides a generic API that abstracts the characteristics of the physical link connecting GPP and DSP from the applications. It eliminates the need for customers to develop such link from scratch and allows them to focus more on application development.

This document provides the users necessary information to install DSP/BIOS™ LINK on the development host.

This document corresponds to the product release Version 1.65.00.03 dated JUL 12, 2010.

2.1.2. Terms and Abbreviations

CCS	Code Composer Studio
IPC	Inter Processor Communication
GPP	General Purpose e.g. ARM
DSP	Digital Signal Processor e.g. DM6437
DSPLink	A generic term used for DSP/BIOS™ Link. It appears in italics in all usages
CGTools	Code Gen Tools, e.g. Compiler, Linker, Archiver

Table 2.1. Terms and Abbreviations

2.1.3. References

1	Evaluation Module (EVM) for the DM6437 Quick Start Installation Guide

Table 2.2. References

2.2. Configuring CCS

2.2.1. Configuring CCS for DM6437

CCS 3.3 can be used for working with DM6437. It may need to be configured to use XDS510 debugger with DM6437.

2.3. ADDITIONAL INFORMATION

2.3.1. Constraints

> **Important**
>
> The name of the DSPLINKMEM section (defined in CFG_DM6437_PCI.c) is fixed and should not be changed by the applications.

> **Important**
>
> DSPLINK by default uses memcpy instead of DMA on DM6437 PCI platform.To use DM6437 EDMA, pass --dspdma=1 commandline option along with other options , when configuring DSPLINK using dsplinkcfg.pl. For example
> ```
> perl dsplinkcfg.pl --platform=LINUXPC --nodsp=1 --dspcfg_0=DM6437PCI
>  --dspos_0=DSPBIOS5XX --gppos=RHEL4 --comps=ponslrmc --dspdma=1
> ```

> **Important**
>
> EDMA channel number used by DSPLINK can be selected by changing the ARG5 to a desired channel number to achieve DMA between host and DM6437 over PCI interface.

> **Important**
>
> All the EDMA Channel, EDMA Param Entry, Interrupt Set/Pending bits, Event number and TCC filed values are based on the EDMA channel selected in the CFG_DM6437_PCI.c. if Channel 0 is configured in the CFG_DM6437_PCI.c file. The following EDMA configuration is used by DSPLINK.
>
> • EDMA Channel 0.
>
> • EDMA Param Entry 0
>
> • Interrupt Set/Pending bits: Bit0
>
> • Event number: 0 (I.e. Bit0 of these registers: ISER, ICR, IPR, EESR, ESR)
>
> • TC value 0
>
> • All other resources used by this channel are defaults/user programmed values (like queue etc).

2.3.2. DIP switch settings (SW1)

The platform port for DSPLink assumes the switch settings using PCI Boot mode without auto initialization. For details about DIP switches refer to technical reference guide for DM6437.

SW1 DIP switch:

- SW1 [4-1] = 0001 (BOOTMODE)

- SW2 [5] = 1

- SW2 [8-6] = 000