Datasheet

BIOS PSP C6748 Datasheet

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1 Introduction

This PSP package consists of peripheral device drivers for the C6748 device. The drivers enable rapid software development on the C6748 platform. This document provides the performance data for each of the drivers on SYS/BIOS™.

2 BIOSPSP Drivers - Features

- Supported Devices
    - o C6748
- Developed and tested on C6748 EVM
- Tools used to build SYS/BIOS™ BIOSPSP drivers
    - o SYS/BIOS Version 6_33_01_25
    - o Code composer studio 5.1.0.09000
    - o CG tools 7.3.1
- I2C and EDMA3 driver from C6748 Starterware v01.20.04.01
- EDMA interface for Starterware EDMA driver with BIOS PSP drivers
- Drivers supported on SYS/BIOS™:
    - o PSC
    - o McASP
    - o McBSP
    - o Audio Interface
    - o Aic3106 codec

Note: *The above list has supported services and features provided in BIOS PSP package. However some services and features might be excluded in this release. Please refer the release notes for exact features and services supported in this release.*

3   Performance data for BIOSPSP drivers

The performance data for the drivers is captured in following sections

- Features supported/not supported

- Memory usage

  The following statistics are taken from drivers built in release mode.

  - Program memory

  - Data memory (Initialized and Un-Initialized memory)

- Resource usage

  - The OS and system resources consumed by each instance of the driver in different modes are listed.

  - OS resources include usage of semaphores

  - System resources include usage of EDMA3 resources (channels, PaRAMs), interrupts and timers

3.1 McASP Driver

3.1.1 Features supported

- Multi-instance support and re-entrant driver
- Each instance can operate as a receiver and/or transmitter
- Supports multiple data formats
- Can be configured to operate in multi-slot TDM, I2S, DSP and DIT (S/PDIF) modes
- Mechanism to transmit desired data (such as NULL tone) when idle
- Explicit control of PIN directions for High Clock, Bit Clock and Frame Sync PINS.
- FIFO support for both TX and RX sections.

3.1.2 Features not supported

- Sample rate change IOCTL is not supported in master mode.

3.1.3 Memory usage

Component	Memory Statistics (Bytes)			
	Program Memory	Data Memory		Total
		Initialized	Un-Initialized	
Mcasp	18880	3626	1360	23866
Mcasp Edma	5632	854	0	6486
Mcasp ioctl	8736	1527	0	10263
Total	**33248**	6007	1360	**40615**

3.1.4 Resource usage

3.1.4.1 DMA mode

SEMAPHORES	DESCRIPTION
0	NA

INTERRUPTS	DESCRIPTION
1	For transmit and receive combined.

EDMA3 CHANNELS	DESCRIPTION
1	Per channel

EDMA3 PARAMS	DESCRIPTION
2	Per channel

3.2   McBSP Driver

3.2.1   Features supported

- Multi-instance support and re-entrant driver
- Each instance can operate as a receiver and/or transmitter
- Supports multiple data formats
- Mechanism to transmit desired data (such as NULL tone) when idle

3.2.2   Memory usage

Component	Memory Statistics (Bytes)			
	Program Memory	Data Memory		Total
		Initialized	Un-Initialized	
Mcbsp	12448	1469	1736	15653
Mcbsp Edma	4160	649	8	4817
Mcbsp ioctl	2336	345	0	2681
Total	**18944**	2463	1744	**23151**

3.2.3   Resource usage

3.2.3.1   DMA mode

SEMAPHORES	DESCRIPTION
0	NA

INTERRUPTS	DESCRIPTION
1	For transmit and receive combined.

EDMA3 CHANNELS	DESCRIPTION
1	Per channel

EDMA3 PARAMS	DESCRIPTION
2	Per channel

3.3   Audio Interface Driver

3.3.1   Features supported

- Multi-instance support and re-entrant driver.
- Each instance can be used to configure a complete receive and transmit section of an audio configuration consisting of an audio device and multiple audio codecs.

3.3.2   Features not supported

None

3.3.3   Memory usage

Component	Memory Statistics (Bytes)			
	Program Memory	Data Memory		Total
		Initialized	Un-Initialized	
Audio	2528	69	340	2937
Total	2528	69	340	2937

3.3.4   Resource usage

None

3.4 Aic3106 codec Driver

3.4.1 Features supported

- Multi-instance support and re-entrant driver.
- Each instance can operate as a receiver and or transmitter.
- Interfaces to control the codec specific features like sample rate etc.

3.4.2 Features not supported

None

3.4.3 Memory usage

Component	Memory Statistics (Bytes)			
	Program Memory	Data Memory		Total
		Initialized	Un-Initialized	
Aic31	4992	468	148	5608
codec_if.c	1440	8	20	1468
aic31_if.c	1376			1376
Total	7808	476	168	8452

3.4.4 Resource usage

SEMAPHORES	DESCRIPTION
1	For Both TX and RX channels combined.

3.5 PSC

3.5.1 Features supported

- Simple module level functions.
- Standalone module (driver).

3.5.2 Features not supported

- PSC does NOT support instances.
- PSC does not implement IOM interface.

3.5.3 Memory usage

Component	Memory Statistics (Bytes)			
	Program Memory	Data Memory		Total
		Initialized	Un-Initialized	
Psc	864	60	256	1180
Total	864	60	256	1180

3.5.4 Resource usage

NA

3.6 EvmInit

3.6.1 Features supported

- Evm specific initializations for the required modules.

3.6.2 Features not supported

- Initializations specific only to those instances used by the sample application are supported.

3.6.3 Memory usage

Component	Memory Statistics (Bytes)			
	Program Memory	Data Memory		Total
		Initialized	Un-Initialized	
audio_evmInit	160	0	0	160
mcbsp_evmInit	96	0	0	96
Total	**256**	**0**	**0**	**256**

3.6.4 Resource usage

NA

3.7 EDMA_IF

3.7.1 Features supported

- EVM specific edma interface required to adapt to starterware EDMA driver with BIOS PSP drivers such as MCASP and MCBSP.

3.7.2 Features not supported

- Unused channel controller and Transfer controller in EDMA resource.

3.7.3 Memory usage

Component	Memory Statistics (Bytes)			
	Program Memory	Data Memory		Total
		Initialized	Un-Initialized	
SwEdmaIf	3584	100	772	4456
Total	3584	100	772	4456

3.7.4 Resource usage

3.7.4.1

SEMAPHORES	DESCRIPTION
1	NA

INTERRUPTS	DESCRIPTION
1	For Channel controller completion event.