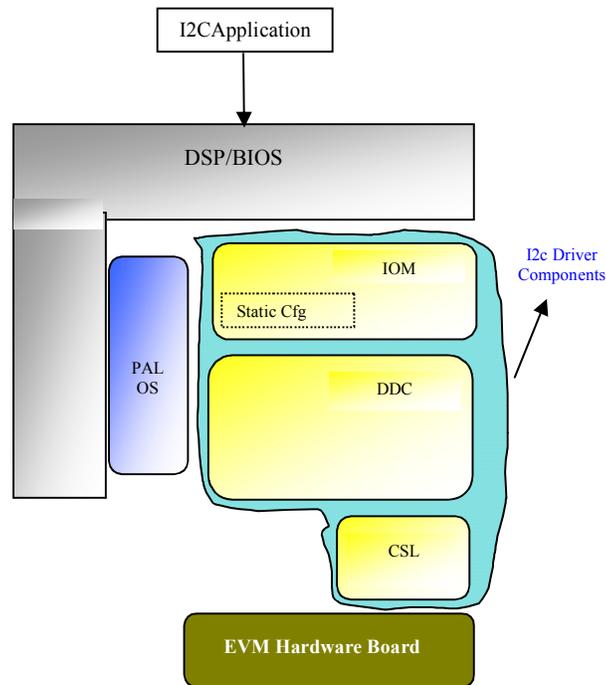




- Multi-instantiable and re-entrant safe driver
- Provides Synch mode of operation
- Operates in Polled and Interrupt Modes
- Compliance of Philips IIC specification (reference to Philips IIC specification v2.1)
- 7-bit and 10-bit device addressing modes
- IIC data transfer rate from 10kbps up to 400kbps (Philips IIC rate).



PRODUCT PREVIEW



Capabilities

The I2C BIOS device driver adopts a scalable architecture that eases customization/extension

- Isolates H/W and OS Accesses, Easy to maintain & re-target to new platforms.
- Can stack custom-functions along control/data-path to realize “driver filters”.
- Supports Multiple Instances.

The driver is constituted of following sub components:

- I2C IOM –OS Specific Adaptation of I2C Device Driver
- I2C DDC – OS Independent part of I2C Driver Core. This also includes CSL.
- System components – BIOS: BIOS Abstraction.

The following table gives a quick overview of the supported API services. For help on interfaces refer to the I2C Driver Help File:

GIO_create	Call PSP_i2cCreate, Creates the channel for the data transfer by setting up I2C hardware params
GIO_Delete	Call PSP_i2cClose, which will Delete a given I2C driver (channel).
GIO_write	Call the PSP_i2cTransfer for data transaction (for write).
GIO_Read	Call the PSP_i2cTransfer for data transaction (for Read)
GIO_control	Call PSP_i2cloctl that will do loctl interface. loctl's Supported are: Refer User guide document

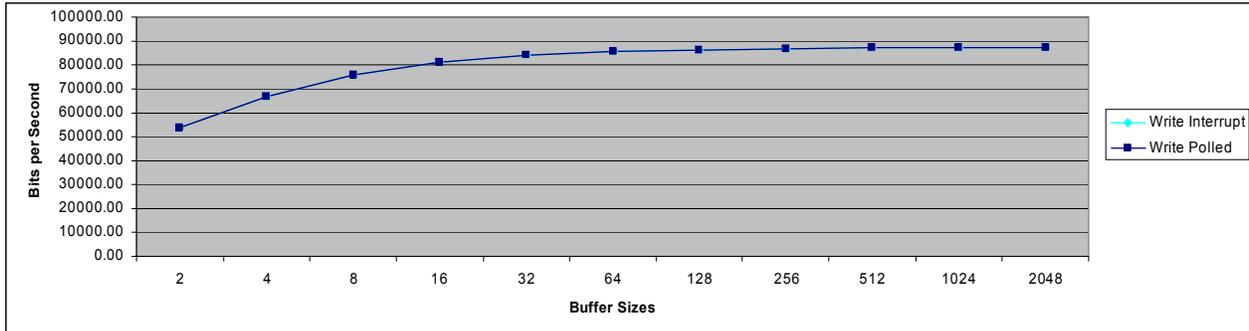


Driver Performance Characteristics

I2C DEVICE DRIVER SUB-COMPONENT	PROGRAM MEMORY (IN BYTES)	DATA MEMORY (IN BYTES)		
		MEMORY TYPE		TOTAL
		INITIALIZED	UN INITIALIZED	
<i2c/IOM>	1888	208	200	2296
<i2c/ddc>	7072	132	200	7404
Total	8960	340	400	9700

- System Components Total Memory (Code & Data): 9764 Bytes

Driver Performance and Profiling Characteristics for DM648/C6452:



Test Setup Information	Buffer Size	Write Interrupt			Write Polled		
		Bits/Sec	Pkts	Duration	Bits/Sec	Pkts	Duration
	2	53776.80	201663	60	53800.00	201750	60
	4	66585.07	124847	60	66601.07	124877	60
API Interface	8	75586.13	70862	60	75596.80	70872	60
	16	81066.67	38000	60	81068.80	38001	60
	32	84117.33	19715	60	84117.33	19715	60
	64	85734.40	10047	60	85734.40	10047	60
	128	86562.13	5072	60	86562.13	5072	60
	256	87005.87	2549	60	87005.87	2549	60
	512	87244.80	1278	60	87244.80	1278	60
	1024	87381.33	640	60	87381.33	640	60
	2048	87381.33	320	60	87381.33	320	60

Comments:

System is configured as cache enabled
 Bus Frequency was set to 100 Khz

PRODUCT PREVIEW



Driver Profiling Characteristics

Polled Mode								
API Profiled	Trial-1	Trial-2	Trial-3	Trial-4	Trial-5	MIN (uSecs)	Average (uSecs)	MAX (uSecs)
DEV_createDevice	8.00	3.00	3.00	3.00	3.00	3.00	4.00	8.00
GIO_create	6.00	3.00	3.00	3.00	3.00	3.00	3.60	6.00
GIO_write	58.00	58.00	58.00	58.00	58.00	58.00	58.00	58.00
GIO_read	59.00	58.00	58.00	58.00	58.00	58.00	58.20	59.00
GIO_control	1.00	0.00	0.00	0.00	0.00	0.00	0.20	1.00
GIO_delete	3.00	1.00	1.00	1.00	1.00	1.00	1.40	3.00
DEV_deleteDevice	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Interrupt Mode								
API Profiled	Trial-1	Trial-2	Trial-3	Trial-4	Trial-5	MIN (uSecs)	Average (uSecs)	MAX (uSecs)
DEV_createDevice	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
GIO_create	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
GIO_write	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00
GIO_read	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00
GIO_control	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GIO_delete	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
DEV_deleteDevice	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Test setup Details

I2C bus frequency is set 400Khz
 1 uSec = 148 Tics

References

- [1] I2C Module Hardware Specifications
- [2] BIOS Documentation from TI
- [3] I2C Device Driver Documentation

Glossary

IOM TI Terminology, Input/Output Mini Driver.
 DDC TI Terminology, Device Driver Core that is OS independent

PRODUCT PREVIEW



PRODUCT PREVIEW

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Copyright © 2006 Texas Instruments Incorporated. All rights reserved.

Information in this document is subject to change without notice. Texas Instruments may have pending patent applications, trademarks, copyrights, or other intellectual property rights covering matter in this document. The furnishing of this documents is given for usage with Texas Instruments products only and does not give you any license to the intellectual property that might be contained within this document. Texas Instruments makes no implied or expressed warranties in this document and is not responsible for the products based from this document. This information applies to a product under development. Its characteristics and specifications are subject to change without notice. Texas Instruments assumes no obligation regarding future manufacturing unless otherwise agreed to in writing.