Microsemi Corporation

May 17, 2016

Product/Process Change Notification No: PCN1603

Change Classification: Minor

Subject: Flash*Freeze entry/exit timing change for SmartFusion®2 and IGLOO®2 devices

Summary of Changes

This is to notify you about a minor specification change related to entry and exit times for Flash*Freeze mode in the SmartFusion2 and IGLOO2 product families. In addition, Flash*Freeze entry and exit times are now calculated with a lower clock frequency to help designers bound the entry and exit times. The next revision of the *DS0128: IGLOO2 and SmartFusion2 Datasheet* will reflect these changes.

Description of Changes

The entry and exit times for the 060 device have decreased, and the new entry and exit times are calculated using two clocks—one 100 MHz clock and one 3 MHz clock. Previously, only a 100 MHz clock was used to compute the values.

The following tables provide existing and new Flash*Freeze entry and exit values for your reference.

Table 1 Existing Flash*Freeze Entry and Exit Values Using a 100 MHz Reference Clock

Symbol	Parameters	Conditions	005, 010, 025, 090, and 150 (µs)	050 (µs)	060 (µs)
TFF_ENTRY	Entry time	eNVM and MSS/HPMS PLL= ON	160	150	320
		eNVM and MSS/HPMS PLL = OFF	215	200	430
TFF_EXIT	Exit time with respect to the MSS PLL lock	eNVM and MSS/HPMS PLL = ON during F*F	100	100	140
		eNVM = ON and MSS/HPMS PLL = OFF during F*F and MSS/HPMS PLL turned back ON at exit	136	120	190
		eNVM and MSS/HPMS PLL = OFF during F*F and both are turned back ON at exit	200	200	285
		eNVM = OFF and MSS/HPMS PLL = ON during F*F and eNVM turned back ON at exit	200	200	285
	Exit time with respect to the fabric PLL lock	eNVM and MSS/HPMS PLL = ON during F*F	1.5	1.5	1.5
		eNVM and MSS/HPMS PLL = OFF during F*F and both are turned back ON at exit	1.5	1.5	1.5
	Exit time with respect to the fabric buffer output	eNVM and MSS/HPMS PLL = ON during F*F	21	15	21
		eNVM and MSS/HPMS PLL = OFF during F*F and both are turned back ON at exit	65	55	65

Table 2 New Flash*Freeze Entry and Exit Values Using a 3 MHz and a 100 MHz Reference Clock

			Entry/Exit Timing FCLK = 100 MHz		Entry/Exit Timing FCLK = 3 MHz
Symbol	**Parameters**	**Conditions**	**005, 010, 025, 060, 090, and 150 (µs)**	**050 (µs)**	**All Devices (µs)**
TFF_ENTRY	Entry time	eNVM and MSS/HPMS PLL= ON	160	150	320
		eNVM and MSS/HPMS PLL = OFF	215	200	430
TFF_EXIT	Exit time with respect to the MSS PLL lock	eNVM and MSS/HPMS PLL = ON during F*F	100	100	140
		eNVM = ON and MSS/HPMS PLL = OFF during F*F and MSS/HPMS PLL turned back ON at exit	136	120	190
		eNVM and MSS/HPMS PLL = OFF during F*F and both are turned back ON at exit	200	200	285
		eNVM = OFF and MSS/HPMS PLL = ON during F*F and eNVM turned back ON at exit	200	200	285
	Exit time with respect to the fabric PLL lock	eNVM and MSS/HPMS PLL = ON during F*F	1.5	1.5	1.5
		eNVM and MSS/HPMS PLL = OFF during F*F and both are turned back ON at exit	1.5	1.5	1.5
	Exit time with respect to the fabric buffer output	eNVM and MSS/HPMS PLL = ON during F*F	21	15	21
		eNVM and MSS/HPMS PLL = OFF during F*F and both are turned back ON at exit	65	55	65

Application Impact

As a result of the entry/exit timing change, you may experience slightly higher power consumption before entering Flash*Freeze mode due to the longer time in active mode when using a lower frequency clock. For the 060 device density, entry and exit into Flash*Freeze is now quicker.

Affected Devices

See Appendix: Affected SmartFusion2 and IGLOO2 Devices.

Contact Information

For further clarifications or questions, contact Microsemi's Technical Support at: soc_tech@microsemi.com

Regards,

Microsemi Corporation

Any projected dates in this PCN are based on the most current product information at the time this PCN is being issued, but they may change due to unforeseen circumstances. For the latest schedule and any other information, please contact your local Microsemi Sales Office, the factory contact shown above, or your local distributor.

Appendix: Affected SmartFusion2 and IGLOO2 Devices

IGLOO2		SmartFusion2	
Leaded Part	**Lead-Free Part**	**Leaded Part**	**Lead-Free Part**
M2GL060-FCS325	M2GL060-FCSG325	M2S060-FCS325	M2S060-FCSG325
M2GL060-VF400	M2GL060-VFG400	M2S060-VF400	M2S060-VFG400
M2GL060-FG484	M2GL060-FGG484	M2S060-FG484	M2S060-FGG484
M2GL060-FG676	M2GL060-FGG676	M2S060-FG676	M2S060-FGG676
M2GL060T-FCS325	M2GL060T-FCSG325	M2S060T-FCS325	M2S060T-FCSG325
M2GL060T-VF400	M2GL060T-VFG400	M2S060T-VF400	M2S060T-VFG400
M2GL060T-FG484	M2GL060T-FGG484	M2S060T-FG484	M2S060T-FGG484
M2GL060T-FG676	M2GL060T-FGG676	M2S060T-FG676	M2S060T-FGG676
M2GL060TS-FCS325	M2GL060TS-FCSG325	M2S060TS-FCS325	M2S060TS-FCSG325
M2GL060TS-VF400	M2GL060TS-VFG400	M2S060TS-VF400	M2S060TS-VFG400
M2GL060TS-FG484	M2GL060TS-FGG484	M2S060TS-FG484	M2S060TS-FGG484
M2GL060TS-FG676	M2GL060TS-FGG676	M2S060TS-FG676	M2S060TS-FGG676
M2GL060-1FCS325	M2GL060-1FCSG325	M2S060-1FCS325	M2S060-1FCSG325
M2GL060-1VF400	M2GL060-1VFG400	M2S060-1VF400	M2S060-1VFG400
M2GL060-1FG484	M2GL060-1FGG484	M2S060-1FG484	M2S060-1FGG484
M2GL060-1FG676	M2GL060-1FGG676	M2S060-1FG676	M2S060-1FGG676
M2GL060T-1FCS325	M2GL060T-1FCSG325	M2S060T-1FCS325	M2S060T-1FCSG325
M2GL060T-1VF400	M2GL060T-1VFG400	M2S060T-1VF400	M2S060T-1VFG400
M2GL060T-1FG484	M2GL060T-1FGG484	M2S060T-1FG484	M2S060T-1FGG484
M2GL060T-1FG676	M2GL060T-1FGG676	M2S060T-1FG676	M2S060T-1FGG676
M2GL060TS-1FCS325	M2GL060TS-1FCSG325	M2S060TS-1FCS325	M2S060TS-1FCSG325
M2GL060TS-1VF400	M2GL060TS-1VFG400	M2S060TS-1VF400	M2S060TS-1VFG400
M2GL060TS-1FG484	M2GL060TS-1FGG484	M2S060TS-1FG484	M2S060TS-1FGG484
M2GL060TS-1FG676	M2GL060TS-1FGG676	M2S060TS-1FG676	M2S060TS-1FGG676
M2GL060-FCS325I	M2GL060-FCSG325I	M2S060-FCS325I	M2S060-FCSG325I
M2GL060-VF400I	M2GL060-VFG400I	M2S060-VF400I	M2S060-VFG400I
M2GL060-FG484I	M2GL060-FGG484I	M2S060-FG484I	M2S060-FGG484I
M2GL060-FG676I	M2GL060-FGG676I	M2S060-FG676I	M2S060-FGG676I
M2GL060T-FCS325I	M2GL060T-FCSG325I	M2S060T-FCS325I	M2S060T-FCSG325I
M2GL060T-VF400I	M2GL060T-VFG400I	M2S060T-VF400I	M2S060T-VFG400I
M2GL060T-FG484I	M2GL060T-FGG484I	M2S060T-FG484I	M2S060T-FGG484I
M2GL060T-FG676I	M2GL060T-FGG676I	M2S060T-FG676I	M2S060T-FGG676I
M2GL060TS-FCS325I	M2GL060TS-FCSG325I	M2S060TS-FCS325I	M2S060TS-FCSG325I
M2GL060TS-VF400I	M2GL060TS-VFG400I	M2S060TS-VF400I	M2S060TS-VFG400I
M2GL060TS-FG484I	M2GL060TS-FGG484I	M2S060TS-FG484I	M2S060TS-FGG484I
M2GL060TS-FG676I	M2GL060TS-FGG676I	M2S060TS-FG676I	M2S060TS-FGG676I
M2GL060-1FCS325I	M2GL060-1FCSG325I	M2S060-1FCS325I	M2S060-1FCSG325I
M2GL060-1VF400I	M2GL060-1VFG400I	M2S060-1VF400I	M2S060-1VFG400I
M2GL060-1FG484I	M2GL060-1FGG484I	M2S060-1FG484I	M2S060-1FGG484I
M2GL060-1FG676I	M2GL060-1FGG676I	M2S060-1FG676I	M2S060-1FGG676I

IGLOO2		SmartFusion2	
Leaded Part	**Lead-Free Part**	**Leaded Part**	**Lead-Free Part**
M2GL060T-1FCS325I	M2GL060T-1FCSG325I	M2S060T-1FCS325I	M2S060T-1FCSG325I
M2GL060T-1VF400I	M2GL060T-1VFG400I	M2S060T-1VF400I	M2S060T-1VFG400I
M2GL060T-1FG484I	M2GL060T-1FGG484I	M2S060T-1FG484I	M2S060T-1FGG484I
M2GL060T-1FG676I	M2GL060T-1FGG676I	M2S060T-1FG676I	M2S060T-1FGG676I
M2GL060TS-1FCS325I	M2GL060TS-1FCSG325I	M2S060TS-1FCS325I	M2S060TS-1FCSG325I
M2GL060TS-1VF400I	M2GL060TS-1VFG400I	M2S060TS-1VF400I	M2S060TS-1VFG400I
M2GL060TS-1FG484I	M2GL060TS-1FGG484I	M2S060TS-1FG484I	M2S060TS-1FGG484I
M2GL060TS-1FG676I	M2GL060TS-1FGG676I	M2S060TS-1FG676I	M2S060TS-1FGG676I
M2GL060T-1FG484M	M2GL060T-1FGG484M	M2S060T-1FG484M	M2S060T-1FGG484M
M2GL060TS-1FG484M	M2GL060TS-1FGG484M	M2S060TS-1FG484M	M2S060TS-1FGG484M
	M2GL060-1FGG484T1		M2S060TS-1FGG484T2
	M2GL060TS-1FGG484T2		M2S060TS-1VFG400T2
	M2GL060TS-1VFG400T2		M2S060TS-1FGG676T2
	M2GL060TS-1FGG676T2		

Microsemi Corporate Headquarters
One Enterprise, Aliso Viejo,
CA 92656 USA
Within the USA: +1 (800) 713-4113
Outside the USA: +1 (949) 380-6100
Sales: +1 (949) 380-6136
Fax: +1 (949) 215-4996
E-mail: sales.support@microsemi.com
www.microsemi.com

About Microsemi

Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for aerospace & defense, communications, data center and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; enterprise storage and communication solutions; security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, Calif., and has approximately 4,800 employees globally. Learn more at www.microsemi.com.