August 19, 2011

CN Number: 1105

CN Change Level: Minor

Subject: SmartFusion (A2F200 and A2F500) Datasheet and Libero IDE Software v9.1 SP2/SP3 Update

Dear Customer,

This notice is to inform you that silicon-based power characterization for SmartFusion® A2F200 and A2F500 is now complete. This has resulted in significant overall reduction in power consumption for these devices. The SmartFusion Customizable System-on-Chip (cSoC) Datasheet (revision 7) and the power model in Libero® Integrated Design Environment (IDE) software (starting with v9.1 SP2) have been updated to reflect these changes.

Key changes in the datasheet:

1. Updated the power specification, dynamic and static, for A2F200 and A2F500
    - Dynamic power on the microcontroller subsystem (MSS) is much lower (>50% in some cases) than previously estimated (Tables 2-14, 2-15).
        - The MSS is a major contributor to the total dynamic power of a design, since it usually runs at a higher clock frequency than the FPGA core.
    - Static power is slightly higher than previously estimated: approximately 15 mW for A2F200 and approximately 25 mW for A2F500 (Tables 2-8, 2-9).
    - Table 1 below shows reduction in total power of a typical SmartFusion design in our test suite
2. Added information related to the new member of the SmartFusion famil,y A2F060 (timing, pinout tables and features).
    - Supported starting in Libero IDE v9.1 SP3
3. SmartFusion CCC/PLL Specification was revised to add information and measurements regarding CCC output peak-to-peak period jitter (Table 2-84).

For a complex product such as SmartFusion cSoC, the datasheet reflects only a subset of all the power parameters. For accurate and detailed power analysis of user designs, the SmartPower tool in the Libero IDE software should be used.

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Table 1 • Before and After Results of a Typical Design Involving an 8051 CPU Implemented in an FPGA (A2F500)

Software Version	Libero IDE v9.1 SP2/SP3 (Now)	Libero IDE v9.1 SP1 (Before)
Dynamic Power (mW)	174.97	273.65
Static Power (mW)	41.79	12.73
Total Power (mW)	**216.76**	**286.38**

If power consumption is critical to your design, we recommend that you rerun power analysis using SmartPower.

- Software
  - The latest Libero IDE software (v9.1 SP3) and combined Release Notes for SP2 and SP3 can be downloaded from the Microsemi SoC Products Group website: http://www.actel.com/download/software/libero/default.aspx
- Datasheet
  - The updated datasheet (Revision 7) can be downloaded from the Microsemi SoC Products Group website: http://www.actel.com/documents/SmartFusion_DS.PDF

Several other minor updates have been made to the SmartFusion cSoC datasheet. Please refer to the List of Changes (page 6-1) for those updates. For questions, please contact the Microsemi SoC Products Group Technical Support hotline at soc_tech@microsemi.com.

Regards,

Microsemi SoC Products Group (formerly known as Actel)

Appendix – Parts Affected

None of the parts are affected; i.e., silicon is unchanged. This is a software-driven change. SmartFusion designs targeting the following part numbers are affected:

Table 2 • Affected Part Numbers

A2F200M3F-FG256	A2F200M3F-1FG484I	A2F500M3G-1FGG256
A2F200M3F-FGG256	A2F200M3F-1FGG484I	A2F500M3G-FG256I
A2F200M3F-1FG256	A2F200M3F-PQ208	A2F500M3G-FGG256I
A2F200M3F-1FGG256	A2F200M3F-PQG208	A2F500M3G-1FG256I
A2F200M3F-FG256I	A2F200M3F-1PQ208	A2F500M3G-1FGG256I
A2F200M3F-FGG256I	A2F200M3F-1PQG208	A2F500M3G-FG484
A2F200M3F-1FG256I	A2F200M3F-PQ208I	A2F500M3G-FGG484
A2F200M3F-1FGG256I	A2F200M3F-PQG208I	A2F500M3G-1FG484
A2F200M3F-CS288	A2F200M3F-1PQ208I	A2F500M3G-1FGG484
A2F200M3F-CSG288	A2F200M3F-1PQG208I	A2F500M3G-FG484I
A2F200M3F-1CS288	A2F500M3G-CS288	A2F500M3G-FGG484I
A2F200M3F-1CSG288	A2F500M3G-CSG288	A2F500M3G-1FG484I
A2F200M3F-CS288I	A2F500M3G-1CS288	A2F500M3G-1FGG484I
A2F200M3F-CSG288I	A2F500M3G-1CSG288	A2F500M3G-PQ208
A2F200M3F-1CS288I	A2F500M3G-CS288I	A2F500M3G-PQG208
A2F200M3F-1CSG288I	A2F500M3G-CSG288I	A2F500M3G-1PQ208
A2F200M3F-FG484	A2F500M3G-1CS288I	A2F500M3G-1PQG208
A2F200M3F-FGG484	A2F500M3G-1CSG288I	A2F500M3G-PQ208I
A2F200M3F-1FG484	A2F500M3G-FG256	A2F500M3G-PQG208I
A2F200M3F-1FGG484	A2F500M3G-FGG256	A2F500M3G-1PQ208I
A2F200M3F-FG484I	A2F500M3G-1FG256	A2F500M3G-1PQG208I
A2F200M3F-FGG484I		