Microsemi Corporation

April 9, 2014

Customer Notification No: CN1412

Customer Advisory Notice (CAN) – Action Required

Subject: Routing Enhancements for RTAX4000S/SL/DSP FPGAs in Libero IDE v9.2 Software

Dear Customer,

Libero IDE v9.2 software includes a routing enhancement for RTAX4000S, RTAX4000SL, RTAX4000D, and RTAX4000DL devices in the RTAX-S/SL/DSP FPGA families. Routing is constrained so that signals can use no more than four unbuffered long lines, which travel across more than four core tiles. This change has been made to ensure that high frequency signals are not routed onto more than four long lines, which could have the effect of degrading signal integrity at high frequencies.

For existing RTAX4000S/SL/DSP designs which are already finalized, a functional test of the device should reveal the presence of any signal integrity issues at high frequencies. For RTAX4000S/SL/DSP designs which are currently in progress, we recommend updating to Libero v9.2 and repeating place and route. Any instances where circuit elements were connected with more than four long lines using a prior version of the Libero software, will be placed and routed with the Libero v9.2 software, such that no more than four long lines are used.

In cases where a design is in progress and it is not possible to update the Libero software to version 9.2, observe the following guidelines:

- Designers should first choose the HCLK networks for high speed clock signals

- Designers should choose the HCLK or RCLK networks for low to medium speed clock networks

- If HCLK and RCLK resources have been fully used and it is necessary to route clocks onto ordinary signal routing tracks, designers should make every effort to keep clock sources and clock destinations in close physical proximity.

Designs which have no clock faster than 50MHz need not be rerouted using the Libero v9.2 software.

Designs which have clocks faster than 50MHz using only HCLK and RCLK resources, need not be rerouted using the Libero v9.2 software.

Designs which have clocks faster than 50 MHz or signals faster than100 Mbit/sec using normal routing resources should be inspected to determine if an upgrade to Libero v9.2 software is recommended. Timing analysis on signals or clocks greater than 50 MHz or 100 Mbit/sec using normal routing resources should be performed. If any net has propagation delay greater than 10 nsec, then an inspection of the SEG file is recommended. The SEG file can be exported from Designer – File – Export – Other Files by selecting "Route Segment Files (*seg) from the pull-down menu.

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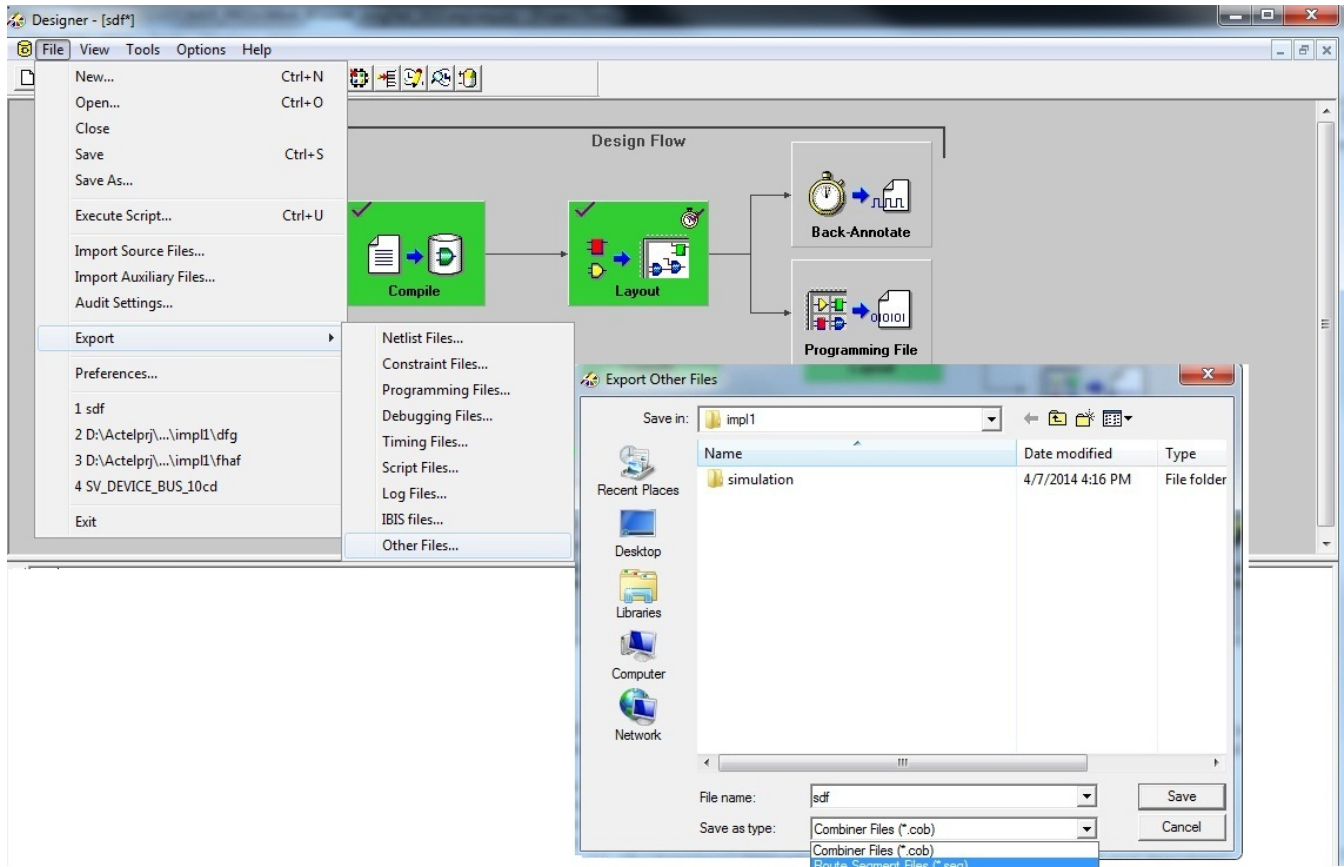
Microsemi engineers will perform this analysis on behalf of customers. The inspection of the SEG file will reveal whether or not more than four long lines have been used to make a connection carrying the high speed clock or signal. It is extremely unlikely that more than four long lines will have been used. If it is found to be the case, Microsemi recommends upgrading to the Libero v9.2 software.

This routing enhancement applies only to RTAX4000S/SL/DSP FPGAs. There is no change to any other RTAX family members (RTAX250S/SL, RTAX1000S/SL, RTAX2000S/SL/DSP).

The Libero IDE v9.2 software can be downloaded from the Microsemi website:

http://www.microsemi.com/products/fpga-soc/design-resources/design-software/libero-ide#downloads

Contact Information:

Microsemi SoC Products Group

For any clarifications or questions for RTAX-S/SL/DSP, contact Microsemi SoC ITAR Tech Support:

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Regards,

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Appendix

Table 1 lists the affected part numbers.

Table 1   Affected Part Numbers

RTAX4000S/SL		
RTAX4000S-CG1272B	RTAX4000S-CQ352B	RTAX4000S-LG1272B
5962-0822401QZA	5962-0822401QXC	5962-0822401QYC
RTAX4000S-1CG1272B	RTAX4000S-1CQ352B	RTAX4000S-1LG1272B
5962-0822402QZA	5962-0822402QXC	5962-0822402QYC
RTAX4000S-CG1272E	RTAX4000S-CQ352E	RTAX4000S-LG1272E
5962-0822403QZA	5962-0822403QXC	5962-0822403QYC
RTAX4000S-1CG1272E	RTAX4000S-1CQ352E	RTAX4000S-1LG1272E
5962-0822404QZA	5962-0822404QXC	5962-0822404QYC
RTAX4000S-CG1272V	RTAX4000S-CQ352V	RTAX4000S-LG1272V
RTAX4000S-1CG1272V	RTAX4000S-1CQ352V	RTAX4000S-1LG1272V
RTAX4000SL-CG1272B	RTAX4000SL-CQ352B	RTAX4000SL-LG1272B
5962-0822405QZA	5962-0822405QXC	5962-0822405QYC
RTAX4000SL-1CG1272B	RTAX4000SL-1CQ352B	RTAX4000SL-1LG1272B
5962-0822406QZA	5962-0822406QXC	5962-0822406QYC
RTAX4000SL-CG1272E	RTAX4000SL-CQ352E	RTAX4000SL-LG1272E
5962-0822407QZA	5962-0822407QXC	5962-0822407QYC
RTAX4000SL-1CG1272E	RTAX4000SL-1CQ352E	RTAX4000SL-1LG1272E
5962-0822408QZA	5962-0822408QXC	5962-0822408QYC
RTAX4000SL-CG1272V	RTAX4000SL-CQ352V	RTAX4000SL-LG1272V
RTAX4000SL-1CG1272V	RTAX4000SL-1CQ352V	RTAX4000SL-1LG1272V

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RTAX4000S-CG1272PROTO	RTAX4000S-CQ352PROTO	RTAX4000S-LG1272PROTO
RTAX4000S-1CG1272PROTO	RTAX4000S-1CQ352PROTO	RTAX4000S-1LG1272PROTO
RTAX4000D/DL		
RTAX4000D-CGD1272B	RTAX4000D-CQ352V	5962-0822409QXC
RTAX4000D-1CGD1272B	RTAX4000D-1CQ352V	5962-0822410QXC
RTAX4000D-CGD1272E	RTAX4000D-CQ352PROTO	RTAX4000DL-CGD1272B
RTAX4000D-1CGD1272E	RTAX4000D-1CQ352PROTO	RTAX4000DL-1CGD1272B
RTAX4000D-CGD1272V	5962-0822411QXC	RTAX4000DL-CGD1272E
RTAX4000D-1CGD1272V	5962-0822412QXC	RTAX4000DL-1CGD1272E
RTAX4000D-CGD1272PROTO	5962-0822409VXC	RTAX4000DL-CGD1272V
RTAX4000D-1CGD1272PROTO	5962-0822410VXC	RTAX4000DL-1CGD1272V
RTAX4000D-LGD1272B	5962-0822413QXC	RTAX4000DL-LGD1272B
RTAX4000D-1LGD1272B	5962-0822414QXC	RTAX4000DL-1LGD1272B
RTAX4000D-LGD1272E	5962-0822415QXC	RTAX4000DL-LGD1272E
RTAX4000D-1LGD1272E	5962-0822416QXC	RTAX4000DL-1LGD1272E
RTAX4000D-LGD1272V	5962-0822413VXC	RTAX4000DL-LGD1272V
RTAX4000D-1LGD1272V	5962-0822414VXC	RTAX4000DL-1LGD1272V
RTAX4000D-LGD1272PROTO	RTAX4000D-CQ352E	RTAX4000DL-CQ352B
RTAX4000D-1LGD1272PROTO	RTAX4000D-1CQ352E	RTAX4000DL-1CQ352B
RTAX4000D-CQ352B	RTAX4000DL-CQ352V	RTAX4000DL-CQ352E
RTAX4000D-1CQ352B	RTAX4000DL-1CQ352V	RTAX4000DL-1CQ352E

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