GEMexpress II (GCC) Revision Change

Accommodating the Adesto 64Mbit Serial Flash Revision E
New Part Number: GCC-2 Rev E

TN-001-0822 Rev A
August 2014

Summary

Adesto has stopped producing the revision D version of their 64Mb serial data flash. They introduced the revision E version as a replacement; however the two are not equivalent. Revision D of the data flash internally organized the memory into 1KB page sizes, whereas revision E changed the internal organization to 256 bytes per page. The difference in page size necessitates the reading and writing to memory to be different. Subsequently, the difference in accessing the flash memory required a necessary hardware change to the Amulet GCC2 hardware.

Objective

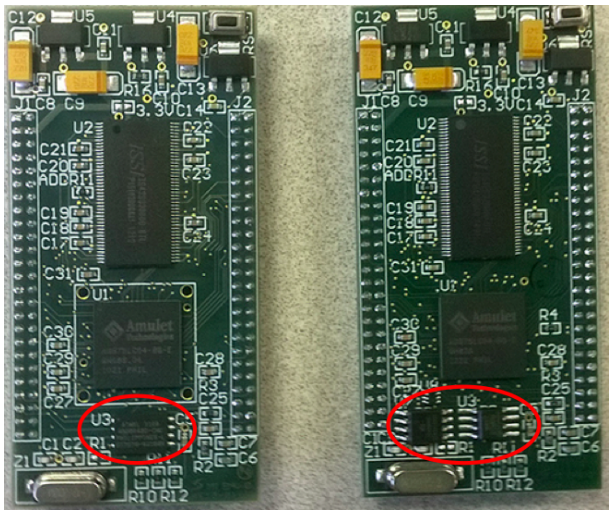
Amulet recognized the importance to our customers that the “form, fit, and function” remain the same for the GCC2. The goal was to design the new GCC2 utilizing revision E of the 64Mb data flash as a drop in replacement to the current GCC2 populated with revision D. In order to achieve this objective, circuit changes were necessary on the GCC2 board design to accommodate the reduced page size within Adesto’s revision E data flash. The nature of the changes allowed the customer to avoid having to make any changes to their existing system in order to accommodate the new revision of GCC2.

Functional Change

The BIOS routine to access the serial data flash is programmed within a masked ROM located inside the Amulet GUI controller chip. The BIOS expected an internal page size of 1KB from the data flash. Since it is impossible to change the masked ROM, there was no obvious way to rewrite the BIOS to accommodate the smaller page size. The decision by Amulet Technologies was to add a small 2Mb serial data flash with a new BIOS routine, a BIOS routine which is compatible with the 256 byte page sizes within the 64Mb Rev. E from Adesto. The new BIOS routine always gets loaded during the initial power up sequence or upon reset.

BOM Changes to GEMexpress II (GCC2)

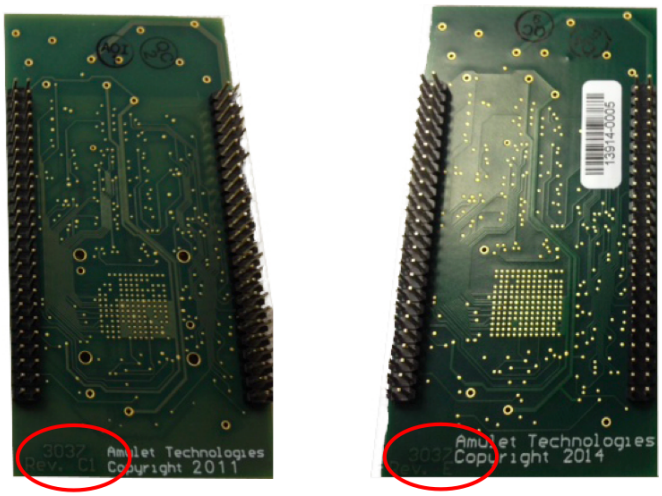
1. Adesto 64Mb revision E replaced revision D.
2. Added Adesto 2Mb serial dataflash
3. Added Fairchild Multiplexer/Demux component
4. Added 0Ω resistor
5. Added 0.1 µF capacitor



Old Part Number: GCC-2 Rev. C1 | New Part Number: GCC-2 Rev. E
Old Adesto Rev. D | Old Adesto Rev. E + 2Mb Serial Flash

Visually the difference is easily determined by the number of serial flash devices on board. The old GCC2 has the single 64 Mb serial flash. The new GCC2 has the 64Mb serial flash and the 2Mb serial flash. The serial flash is highlighted in the red circle above.

An alternative way to visually identify the difference is by the revision letter which is printed on the opposite side of the PCB. In the picture above it's difficult to identify, but the letters are easily readable on the actual board.



Customer Support Contact Information

If there are any questions about GEMexpress II or the modifications made to support the Adesto Rev. E part please contact Amulet customer support via e-mail at support@amulettechnologies.com.