Tundra SCV64 FAQ

This document answers frequently asked questions about the Tundra® SCV64™.

1. Can the SCV64 be used in slave only applications?

The SCV64 can be used in many slave applications interfacing the VMEbus. An Automatic Base Address Register configuration is available to facilitate designs when no on board processors are present. Refer to the manual section 2.7.2.1.

2. Why use the SCV64 as a bridging solution?

The SCV64 is a fully featured part which incorporates the following user definable options:

- VMEbus System controller option. Leading performance in its class.
- Tundra commitment to ongoing production support.
- Automatic VMEbus Syscon identification.
- Multiple VMEbus request, release and arbitration schemes.
- VMEbus interrupter and interrupt handler.
- Master/Slave A64/D64, A32/D64, A24/D32, D16, D08 operations.

3. What packages are available for the SCV64?

The SCV64 comes in a 299-pin CPGA package and a 304-pin PQFP package.

4. Why can't I access the SCV64's registers from the local bus ?

Ensure that upon power-up that KDS is sampled high on the rising edge of every reset. This will set bit-24 in the MODE register to 0. If this bit is set to 1, than the SCV64 has powered up incorrectly. This means that while doing register accesses the extra wait state which is needed to meet the SCV64SEL set up time to KAS is not inserted and will cause problems while doing register accesses.

5. I powered up my board but I cannot access the SCV64 registers from the VMEbus.

You must make sure that the SCV64 is not in BI-Mode. Refer to the manual for the different options section 2.14 . You must ensure that the base address register is programmed correctly. (See Appendix F)

6. Why can't I access the SCV64's location monitor?

Verify that the internal delay lines are correctly configured. The five delay lines account for the 20, 30, and 40 ns timings for all of the VME signals. They are calibrated to automatically compensate for internal gate variations due to changes in the SCV64 supply voltage, operating temperature and semiconductor processing.

7. What is the latch up current for the SCV64?

The latch up current for the SCV64 is >= to 500mA per JEDEC standard No.17.

8. What is the power dissipation of the SCV64?

The power dissipation of the part is typically 0.75 Watts with the system controller enabled and 0.50Watts without the Syscon.

9. Why are there so many transceivers associated with the SCV64? Couldn't they be incorporated into the SCV64 itself and minimize the part count?

The transceivers are required to produce the drive strength required by the VMEbus. All VME signals require between 64 and 48ma of drive strength (Revisions of the specification are calling for increases to 100ma). Incorporating all these transceivers into the SCV64 would raise the power consumption tremendously and impact its reliability. Real estate impacts from the transceivers can be minimized by using low profile packages on the rear side of the VME board.

10. The SCV64 implements a 680x0 protocol for its local interface, but my local bus calls for a completely different protocol. Can it be used in different environments?

The SCV64 is currently in use in a vast range of applications from DSP and imaging boards to robotic interface and multiprocessing. Some processors that have been used with the SCV64 include: a wide range of TI DSPs (TMS320C20/C40/C50), Intel's x86 family, Motorola's embedded processor family (683xx), MIPS, and Sparc. Contact Applications Engineering for more information.

11. Does the SCV64 implement JTAG or some other form of boundary scan?

No. There are pins reserved on the SCV64 for JTAG for future implementation. At this time, there are no plans to make use of these pins.

12. What is the recommended use for the RETRY*/VRMC pin?

This is a dual function pin developed prior to the definition of RETRY* in the VME64 specification. Depending upon its mode (determined by the RMCPIN bit in the MODE register) it will implement one of two Tundra proprietary VME functions. Section E.1.5 of the SCV64 User Manual further describes these functions. If unused, this signal must be pulled high.

13. I know the internal delay lines are used to optimize the SCV64's VME timing, but can they be used to tune my particular system for faster operation?

The SCV64's internal delays are continuously updated to compensate for process, temperature and voltage variations to produce VME timing as close to the VME specification as possible. There are options in the design to allow for overriding of this automatic compensation and replacement with user defined values, however, this is not recommended. Significant temperature variations can occur in a system which have significant impacts on an uncalibrated delay line. The result can be a system with infrequent, difficult to isolate, and unrepeatable problems caused by marginal system timing.

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