



SISCI

Example programs

Dolphin Interconnect Solutions AS

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1 Introduction

The SISCO API is delivered with a complete software package (SISCO API Software Developers Kit). This software package includes the SISCO driver, SISCO library, IRM driver, example programs (both c-files and binaries), benchmark programs, diagnostic tool and configuration tools.

To demonstrate the use of the SISCO API, different source program examples files are provided with the SISCO Software Developers Kit. It's divided into eight different programs. These programs are made very simple to illustrate the use of the SISCO API. The binary files of the example programs are also provided with the software package.

2 SISI Example Programs

The following example programs are included in the SISI Software Developers Kit:

- Shmem - Shared memory example
- Block - Block transfer example
- Interrupt - Interrupt example
- Dma - DMA example
- Query - Query system and adapter example
- Cspace - Connect SCI Space example
- Probe - Probe node example
- Csr - Read and Write CSR registers example

2.1 Shmem

This program demonstrates the use of the shared memory between two nodes. A segment is created on the the server node. The client node connects to this segment and transfers data to the server node. The sequence functions are used to check for errors during the data transfer. The program uses interrupt to synchronize.

The program demonstrates the use of the following SISI API function calls:

- ✓ SCIOpen()
- ✓ SCICreateSegment()
- ✓ SCIPrepareSegment()
- ✓ SCIMapLocalSegment()
- ✓ SCIMapRemoteSegment()
- ✓ SCISetSegmentAvailable()
- ✓ SCIConnectSegment()
- ✓ SCIUnmapSegment()
- ✓ SCIDisconnectSegment()
- ✓ SCIRemoveSegment()
- ✓ SCICreateMapSequence()
- ✓ SCIStartSequence()
- ✓ SCICheckSequence()
- ✓ SCIRemoveSequence()
- ✓ SCIClose()

2.2 Block

This program demonstrates the use of the shared memory between two nodes using block transfer operations. The user specifies the block of data to be transferred to the remote node. The system hostbridge is checked to be able to transfer the data in an optimized way. The error checking is hidden inside the block function.

Like in the shm case, a segment is created on the server node. The client node connects to this segment and transfers the data to the server node. The program uses interrupt to synchronize.

The program demonstrates the use of the following SISI API function calls:

- ✓ SCIOpen()
- ✓ SCIQuery()
- ✓ SCICreateSegment()
- ✓ SCIMapLocalSegment()
- ✓ SCIMapRemoteSegment()
- ✓ SCIConnectSegment()
- ✓ SCISetSegmentAvailable()
- ✓ SCISetSegmentUnavailable()
- ✓ SCITransferBlock()
- ✓ SCIUnmapSegment()
- ✓ SCIDisconnectSegment()
- ✓ SCIRemoveSegment()
- ✓ SCIClose()

2.3 Interrupt

This program demonstrates interrupt between two nodes. An interrupt segment is created on the the server node. The client node connects to this interrupt and triggers the remote interrupt.

The interrupt number can either be specified by the user or automatically chosen by the system. In this example, the interrupt number is specified by the user.

The program demonstrates the use of the following SISI API function calls:

- ✓ SCIOpen()
- ✓ SCICreateInterrupt()
- ✓ SCIConnectInterrupt()
- ✓ SCIDisconnectInterrupt()
- ✓ SCITriggerInterrupt()
- ✓ SCIWaitForInterrupt()
- ✓ SCIRemoveInterrupt()
- ✓ SCIClose()

2.4 DMA

This program demonstrates a DMA transfer between two nodes. After a connection between client node and server node has been established, the client node enqueues and posts the data to the DMA engine. The client node sends an interrupt signal to the server node to indicate that the data transfer is complete.

The program demonstrates the use of the following SISI API function calls:

- ✓ SCIOpen()
- ✓ SCICreateSegment()
- ✓ SCIPrepareSegment()
- ✓ SCIMapLocalSegment()
- ✓ SCIMapRemoteSegment()
- ✓ SCISetSegmentAvailable()
- ✓ SCIConnectSegment()
- ✓ SCIUnmapSegment()
- ✓ SCIDisconnectSegment()
- ✓ SCIRemoveSegment()
- ✓ SCICreateDMAQueue()
- ✓ SCIEnqueueDMATransfer()
- ✓ SCIPostDMAQueue()
- ✓ SCIWaitForDMAQueue()
- ✓ SCIRemoveDMAQueue()
- ✓ SCIClose()

2.5 Query

The query function fetch information about the driver versions, the local system (e.g. hostbridge type) and the adapter. In this example, the program get information about the local adapter card nodeId, adapter type, adapter serial number and the system hostbridge.

The program demonstrates the use of the following SISI API function calls:

- ✓ SCIOpen()
- ✓ SCIQuery()
- ✓ SCIClose()

2.6 CSpace - Connect SCI space

This program demonstrates how to connect directly to a window in the SCI space on a local or remote node and do operations on this location. The user must specify the remote nodeId, the base address and the size of the SCI window. The responsibility is left to the user. This example reads the nodeId on a remote node. The program uses privileged operations that must be used with care.

This program demonstrates the use of the following SISCI API function calls:

- ✓ SCIOpen()
- ✓ SCIConnectSCISpace()
- ✓ SCIMapRemoteSegment()
- ✓ SCIUnmapSegment()
- ✓ SCIDisconnectSegment()
- ✓ SCIClose()

2.7 Probe

This program demonstrates the use of probe functions to check if a remote node is reachable.

The program demonstrates the use of the following SISI API function calls:

- ✓ SCIOpen()
- ✓ SCIProbeNode()
- ✓ SCIClose()

2.8 CSR

This program example demonstrates how to read a register value contained in the CSR space of a SCI node. The program uses privileged operations that must be used with care.

The program demonstrates the use of the following SISCI API function calls:

- ✓ SCIOpen()
- ✓ SCIGetCSRRegister()
- ✓ SCISetCSRRegister()
- ✓ SCIClose()

