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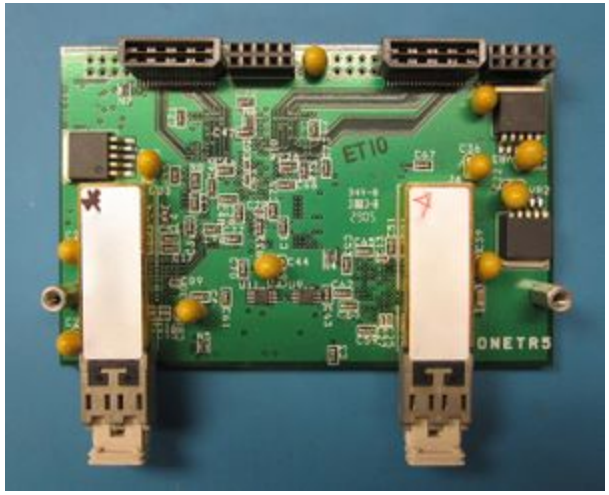
Actions
Tools

ICE-SONET-r5

SONET Interface Module For Use With ICE-PIC5XL

Features

- Sonet interface module for use with ICE-PIC5XL
- Dual-site module: uses both I/O ports of ICE hardware/rumeL signal transformation systems
- DUAL bidirectional, interfaces to STM1, STM4, STM8, STM16,OC3, OC12, OC24, and OC48
- Output interfaces to STM1, STM4, STM8, STM16, OC3, OC12, OC24, OC48, and SDH lines
- Accepts G.709 FEC OC48 input
- Port 1 provides STM1, STM4, STM8, STM16 BiDir fiber interface
- Port 2 Provides STM1, STM4, STM8, STM16 BiDir fiber interface
- INPUT-Port 1 is capable of realtime demux of STM16 to user selectable STM1, STM4, or STM8

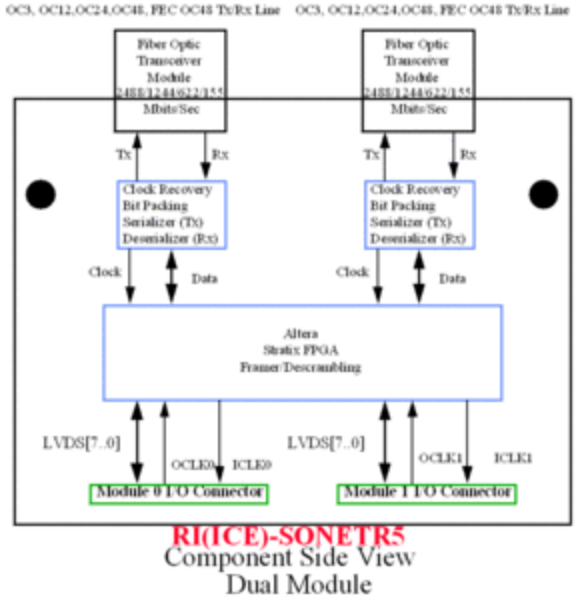


SONET-r5 Top



SONET-r5 Bottom

- INPUT-Port 2 is capable of realtime demux of STM16 to user selectable STM1, STM4, or STM8
- OUTPUT-Port 1 is capable of "cloning" STM1, STM4, STM8 to STM16
- OUTPUT-Port 2 is capable of "cloning" STM1, STM4, STM8 to STM16
- Provides bit packing, frame alignment, and descrambling/scrambling
- Rx 1310nm or 1550nm, Tx at 1300nm
- Activating Rx acquisition provides for feed through to Tx port of Rx data
- Raw input of FEC OC48, OC48 data or use demux function
- Demux operation port 1: software selection of single STM1 or STM4 from raw STM16 data acquisition
- Demux operation port 2: software selection of single STM1 or STM4 from raw STM16 data acquisition
- X-Midas/Nextmidas and C user interfaces
- LowNoiseFloor provides systems capable of input/output of full STM16 or FEC STM16 rates with full integration of hardware & software (full "turn-key" solutions)



SONET-r5 Diagram

Notes:

1. Order P/N: ICE-SONETR5 for module with interface to ICE-PIC5XL or ICE-PIC6
2. The ICE-PIC4T is capable of 200 MBytes/Sec input or output of data. Using the SonetR5 module would require the user to demux input data rates and "clone" output data rates that are higher than the 200 MByte/Sec maximum throughput of the ICE-PIC4T; therefore, realtime capture or playback of a full OC48 signal is not possible using a SonetR5 and ICE-PIC4T due to the data rate limitations of the ICE-PIC4T. The ICE-PIC5T is capable of over 800 MByte/Sec input and output of data; therefore, dual OC48 signal input and outputs are supported without the use of demux or cloning functions.
3. ICE-PIC4T and ICE-PIC5 series of cards have different and unique I/O module interfaces. (Each has different I/O module connectors.) Therefore, SonetR5 modules ordered with the PIC4T interface connections, (P/N: RI(ICE)-SonetR5-P4) are not capable of being used with an ICE-PIC5T. Also, SonetR5 modules ordered with the ICE-PIC5T interface connections (P/N: RI(ICE)-SonetR5-P5) are not capable of being used with an ICE-PIC4T.

Port Modes-Acquisition & Playback

Port 1 SonetR5 Acquisition Signal Types

1. G.709 FEC OC48 (no demuxing)
2. OC48
3. OC24
4. OC12
5. OC3

Port 1 SonetR5 Playback Signal Types:

1. G.709 FEC OC48 (no cloning)
2. OC48
3. OC24
4. OC12
5. OC3

Port 2 SonetR5 Acquisition Signal Types:

1. G.709 FEC OC48 (no demuxing)
2. OC48
3. OC24
4. OC12
5. OC3

Port 2 SonetR5 Playback Signal Types:

1. G.709 FEC OC48 (no cloning)
2. OC48
3. OC24
4. OC12
5. OC3

FLAG USAGE

SonetR5 Side #1 Acquisition/Playback Flags

OC48: logical signal type OC48, may be used with either demux flags or G709FEC flag but not both OC12: logical signal type OC12, may be used with demux flags OC3: logical signal type OC3

SonetR5 Side #2 Acquisiiton/Playback Flags

OC48: logical signal type OC48, may be used with either demux flags or G709FEC flag but not both OC12: logical signal type OC12, may be used with demux flags OC3: logical signal type OC3

Additional Flags For Use with Side #1 or #2 Flags

- G709FEC: input signal is G.709 FEC encoded
- For SonetR5 #1 side: must be used with OC192 flag & demux flag
- For SonetR5 #2 side: must be used with OC48 & FRAMINGOFF flags, demux flag not allowed

FRAMINGOFF

Acquire or playback data as it appears on the fiber optic line. Frame alignment and de-scrambling of data are turned off. This flag may NOT be used with demux/cloning flags.

Demux/Cloning Flag Options- To Be Used with Side #1 or #2 Flags

OC3FROMOCX

- For acquisition: pull out single OC3 stream from an OC12, OC24, or OC48 source
- For playback: replicate the data N times within hardware to form a higher rate signal; for OC12 N is 4, OC24 N is 8, and OC48 N is 16

This flag requires the use of OC12, OC24, or OC48 flags and OC12, OC24, or OC48 signal input.

OC3NUM=x

- For acquisition: which OC3 to pull from OC12, OC24, or OC48 signal
- For playback: specify any number for x

This flag requires the use of the OC3FROMOCX flag.

Value Range:

- Values of x for an incoming/outgoing OC12 are 0 thru 3
- Values of x for an incoming/outgoing OC24 are 0 thru 7
- Values of x for an incoming/outgoing OC48 are 0 thru 15

OC12FROMOCX

- For acquisition: pull out single OC12 stream from either an OC24 or OC48 source.
- For playback: replicate the data N times within hardware to form a higher rate signal; for OC24 N is 2, and OC48 N is 4.

This flag requires the use of OC24, OC48, or OC192 flags and OC24 or OC48 signal input.

OC12NUM=x

- For acquisition: which OC12 to pull from OC24 or OC48 signal
- For playback: specify any number for x

This flag requires the use of the OC12FROMOCX flag.

Value Range:

- Values of x for an incoming/outgoing OC24 are 0 or 1
- Values of x for an incoming/outgoing OC48 are 0 thru 3

OC24FROMOCX

- For acquisition: pull out single OC24 stream from an OC48 source.
- For playback: replicate the data N times within hardware to form a higher rate signal; for OC48 N is 2

This flag requires the use of OC48 or OC192 flag and OC48 or OC192 signal input.

OC24NUM=x

- For acquisition: which OC24 to pull from OC48 signal
- For playback: specify any number for x

This flag requires the use of the OC24FROMOCX flag.

Value Range: values of x for an incoming OC48 are 0 or 1.

Examples

Side #1 Acquisition Flag Examples

G709FEC,OC48,FRAMINGOFF	Acquire Full G.709 FEC OC48
OC48	Acquire Full OC48
OC48,OC12FROMOCX,OC12NUM=2	Demux 3rd OC12 From OC48 Input
OC12,OC3FROMOCX,OC3NUM=3	Demux 4th OC3 From OC12 Input

Side #2 Acquisition Flag Examples

G709FEC,OC48,FRAMINGOFF	Acquire Full G.709 FEC OC48
OC48	Acquire Full OC48
OC48,OC12FROMOCX,OC12NUM=2	Demux 3rd OC12 From OC48 Input
OC12,OC3FROMOCX,OC3NUM=3	Demux 4th OC3 From OC12 Input

Side #1 Playback Flag Examples

G709FEC,OC48,FRAMINGOFF	Playback Full G.709 FEC OC48
OC48	Playback Full OC48
OC48,OC12FROMOCX,OC12NUM=0	Clone OC12 4 Times to produce OC48 Output
OC12,OC3FROMOCX,OC3NUM=0	Clone OC3 4 Times to produce OC12 Output
OC48,OC3FROMOCX,OC3NUM=0	Clone OC3 16 Times to produce OC48 Output

Side #2 Playback Examples

G709FEC,OC48,FRAMINGOFF	Playback Full G.709 FEC OC48
OC48	Playback Full OC48
OC48,OC12FROMOCX,OC12NUM=0	Clone OC12 4 Times to produce OC48 Output
OC12,OC3FROMOCX,OC3NUM=0	Clone OC3 4 Times to produce OC12 Output
OC48,OC3FROMOCX,OC3NUM=0	Clone OC3 16 Times to produce OC48 Output

C Program Date : December 27, 2005

Program works with ice318b11 and higher. Support for SonetR1, R2, R4, and R5 modules. To build the software, copy the zip package to <install path>/iceXXX/test directory, where <install path> is the directory structure where the ICE software package iceXXX was installed. The directory iceXXX represents the software version; e.g., ice318b11, ice318b18, etc.

Unzip sntcfiles.zip to produce 2 files: testsnt.c and buildsnt.lnx. Finally, to build the software, type: `source buildsnt.lnx`
Sourcing the build script will cause the program testsnt to be built. During compilation of testsnt, progress messages will be printed to the user.

Zipped version of testsnt.c AND buildsnt.lnx: sntcfiles.zip (https://downloads.ice-online.com/sntcfiles-20120909.zip)

testsnt C Program Explanation/Examples

New testsnt.c program examples:

```
./testsnt  <mod type>  <card number>  <"acq" or "play">  <size in GBytes>  <loops> <port number>

   → <path & filename> <flags>

  <mod type>         module type r1, r2 ,r4, r5 For Sonet Modules SonetR1, SonetR2, SonetR4,
                     SonetR5, respectively

  <card number>      ICE PIC card number in system, 0 for first card, 1 for second card, etc.,
                     depending on which card is in use

  <"acq" or "play">  acq will cause the card/module to acquire data, play will cause the
                     card/module to playback data

  <size in GBytes>   size of acquisition or playback in GBytes

  <loops>            represents the number of times to "loop" through a file for playback,
                     always set = 1 for acquisitions

  <port number>      set to 1 for operation on port 1, set to 2 for operation on port 2,
                     set to 3 for operation on both ports 1 & 2

  <path & filename>  acq, specify path & filename of where data is to be written  or play,
                     path and  filename for playback of data

  <flags>            see flag descriptions and examples above
```

Examples of using the flags above with the testsnt program

The examples make 2 assumptions:

1. The OS driver was setup to allocate enough memory for card usage.
   The testsnt program will request the following from the driver:
   - 640 MBytes for OC48 rates
   - 256 Mbytes for OC24 rates
   - 128 MBytes for OC12 rates
   - 64 MBytes for OC3 rates
2. Therefore, for the desired data rate, the driver previously must have been setup to allocate at least the amount requested.
   - The disk RAID (mounted on /raid for the examples below) used for acquisitions/playbacks is capable of writing/reading at the example signal rates.
   - OC48-320Mbytes/Sec, OC12-80Mbytes/Sec, OC3-20Mbytes/SEC

Note the use of commas and no spaces between flags at the end of the command line string.

```
./testsnt  r5  0  acq  20  1  1  /raid/xmidas/test1.dat  G709FEC,OC48,FRAMINGOFF
            -From SonetR5 module on 1st card aqcuire 20 Gigabytes from port 1 to
             filename /raid/xmidas/test1.dat
            -Input signal is a G.709 FEC encode OC48.  Acquire entire signal to
             file /raid/xmidas/test1.dat

./testsnt  r5  0  play  20  1  1  /raid/xmidas/test1.dat  G709FEC,OC48,FRAMINGOFF
            -Output data on SonetR5 module on 1st card, port 1,
             from file /raid/xmidas/test1.dat.
            -Output signal type is G.709 FEC OC48

./testsnt  r5  0  acq  100  1  1  /raid/xmidas/test1.dat  OC48,OC3FROMOCX,OC3NUM=14
            -From SonetR5 module on 1st card aqcuire 100 Gigabytes from port 1 to
             filename /raid/xmidas/test1.dat
            -Input signal is an OC48.  Demux out the 15th OC3 and store to
             file /raid/xmidas/test1.dat.

./testsnt  r5  0  play  100  8  1  /raid/xmidas/test1.dat  OC48,OC3FROMOCX,OC3NUM=0
            -Output data on SonetR5 module on 1st card, port 1,
             from file /raid/xmidas/test1.dat.
            -Output data is an OC48, which is created by cloning 16 times OC3 data
             from file /raid/xmidas/test1.dat
            -"Loop" at the end of file to replay data 8 times. In short,
             playback file 8 times.

./testsnt  r5  0  acq  20  1  2  /raid/xmidas/test2.dat  G709FEC,OC48,FRAMINGOFF
            -From SonetR5 module on 1st card aqcuire 20 Gigabytes from port 2 to
             filename /raid/xmidas/test2.dat
            -Input signal is a G.709 FEC encode OC48.  Acquire entire signal to
             file /raid/xmidas/test2.dat

./testsnt  r5  0  play  20  1  2  /raid/xmidas/test2.dat  G709FEC,OC48,FRAMINGOFF
            -Output data on SonetR5 module on 1st card, port 2,
             from file /raid/xmidas/test2.dat.
            -Output signal type is G.709 FEC OC48

./testsnt  r5  0  acq  100  1  2  /raid/xmidas/test2.dat  OC48,OC3FROMOCX,OC3NUM=14
            -From SonetR5 module on 1st card aqcuire 100 Gigabytes from port 2 to
             filename /raid/xmidas/test2.dat
            -Input signal is an OC48.  Demux out the 15th OC3 and store to
             file /raid/xmidas/test1.dat.

./testsnt  r5  0  play  100  8  2  /raid/xmidas/test2.dat  OC48,OC3FROMOCX,OC3NUM=0
            -Output data on SonetR5 module on 1st card, port 2,
             from file /raid/xmidas/test2.dat.
            -Output data is an OC48, which is created by cloning 16 times OC3 data
             from file /raid/xmidas/test2.dat
            -"Loop" at the end of file to replay data 8 times. In short,
             playback file 8 times.

./testsnt  r5  0  acq  100  1  2  /raid/xmidas/test2.dat  OC48
            -From SonetR5 module on 1st card aqcuire 100 Gigabytes from port 2 to
             filename /raid/xmidas/test2.dat
            -Input signal is an OC48.  Acquire entire signal to
             file /raid/xmidas/test2.dat
```

```
./testsnt  r5  0  play  100  1  2  /raid/xmidas/test2.dat  OC48
            -Output data on SonetR5 module on 1st card, port 2,
             from file /raid/xmidas/test2.dat.
            -Output data is an OC48, which is aken directly from
             file /raid/xmidas/test2.dat-with no cloning.
            -Playback file once and stop.

./testsnt  r5  0  acq  100  1  2  /raid/xmidas/test2.dat  OC12
            -From SonetR5 module on 1st card aqcuire 100 Gigabytes from port 2 to
             filename /raid/xmidas/test2.dat
            -Input signal is an OC12.  Acquire entire signal to
             file /raid/xmidas/test2.dat

./testsnt  r5  0  play  100  1  2  /raid/xmidas/test2.dat  OC12
            -Output data on SonetR5 module on 1st card, port 2,
             from file /raid/xmidas/test2.dat.
            -Output data is an OC12, which is aken directly from
             file /raid/xmidas/test2.dat-with no cloning.
            -Playback file once and stop.

./testsnt  r5  0  acq  100  1  2  /raid/xmidas/test2.dat  OC3
            -From SonetR5 module on 1st card aqcuire 100 Gigabytes from port 2 to
             filename /raid/xmidas/test2.dat
            -Input signal is an OC3.  Acquire entire signal to
             file /raid/xmidas/test2.dat

./testsnt  r5  0  play  100  1  2  /raid/xmidas/test2.dat  OC3
            -Output data on SonetR5 module on 1st card, port 2,
             from file /raid/xmidas/test2.dat.
            -Output data is an OC3, which is aken directly
             from file /raid/xmidas/test2.dat-with no cloning.
            -Playback file once and stop.
```

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