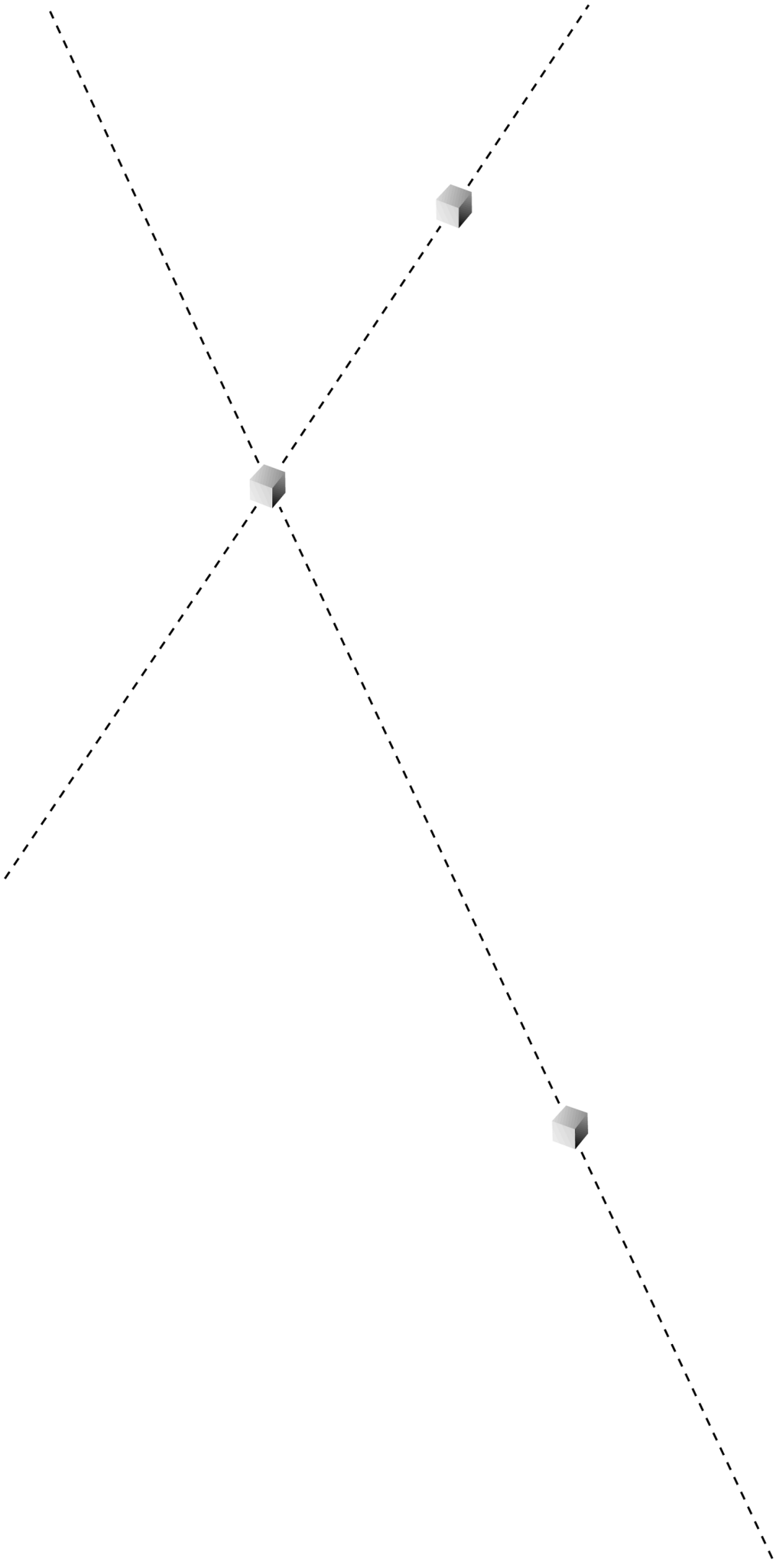

summafour

ITU Integrated SS7 ISUP, V5.0 FSR01, Release Notes

61090302850-0AR

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generated, used, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manuals, may cause interference in which case the user will be required to correct the interference at his/her own expense.

NOTICE: Customers connecting this device to the network shall, upon request of the telephone company, inform the telephone company of the particular lines such connections are made, the FCC registration number, and ringer equivalence number of this device. This information is contained on the label located on the rear panel of the system.

If this device causes harm to the network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice isn't practical, you will be notified as soon as possible. You will be advised of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper operation of your equipment. If they do, you will be notified in advance to give you the opportunity to maintain uninterrupted service.

If you experience trouble with the system, please contact Summa Four, Inc., 25 Sundial Avenue, Manchester, NH 03103-7251, (800) 978-6624 for repair information. The telephone company may ask you to disconnect this equipment from the network until the problem has been corrected, or you are sure that the equipment is not malfunctioning.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

P/N 61090302850-0AR

Released: 02.16.99

Summa Four, Inc. reserves the right to change specifications without prior notice.

For further information about this product, contact:

Summa Four Inc.

25 Sundial Avenue

Manchester, NH 03103-7251

(800) 978-6624

Printed In U.S.A.

This symbol on the product's nameplate means it has been tested by Electronic Testing Labs, Inc.

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SECTION 5 – KNOWN FUNCTIONAL CONSTRAINTS

Preface

The *ITU Integrated SS7 ISUP, V5.0 FSR01, Release Notes* provide important information about Version 5.0 FSR01 of ITU Integrated SS7 ISUP software. This information includes

- A list of the enhancements and problems corrected since Version 5.0 FSR00.
- A description of the system requirements for V5.0 FSR01.
- A list of special considerations you should be aware of.
- A list of known design constraints.
- A list of known functional constraints and work arounds.

For information on how to install and use the ITU Integrated SS7 product, refer to the *ITU Integrated SS7, V5.0, System Supplement* (61090301250).

These release notes are intended for programmers familiar with SDS or VCO Systems, SS7 concepts, UNIX, and Ethernet.

Section 1
CONTENTS OF THE RELEASE

1.1 INTRODUCTION

ITU Integrated SS7 ISUP, Version 5.0 FSR01, is the latest Integrated SS7 ISUP release for SDS and VCO Series systems. This section describes the enhancements and problems corrected since CCITT Integrated SS7 ISUP, Version V5.0 FSR00.

New features and enhancements in the ITU Integrated SS7, Version 5.0 FSR01, release include:

- Three New CktInt.cfg Feature Flags
- Two New Parameters for CktInt to Support Outbound COT

This release supports the ITU standards listed in Table 1.1.

Table 1.1: ITU Standards Supported by V5.0 FSR01

SS7 Layer	Standard
MTP-2	Q.701-Q.703, 1992
MTP-3	Q.704-Q.707, 1992
ISUP	Q.761-Q.764, 1992

NOTE: The country variants of Integrated SS7 ISUP, V5.0 FSR01, may not support all specifications for the standards listed in Table 1.1, and in some cases, additional messages are required. The differences for each supported country are described in Appendix E *of the* ITU Integrated SS7, V5.0, System Supplement.

1.2 INSTALLATION

The startup procedure has changed for this release. **Prior to running the new software, you must complete the following steps**:

1. Remove all current ebs drivers.
   - *Log in to the Integrated SS7 system as* ***root****.*
   - *Enter the following command and press* ***Return****:*

     /export/home/EBS/access/install/rmEBSdrv
2. Turn power off.
3. Turn power back on for the ecpt drivers to be recognized by the system.

   NOTE: If you are running a 4-link or 8-link configuration, the ecp drivers will not be loaded. Instead, the ecpt drivers will get loaded. ***The port assignments for these drivers are slightly different from ecp. No matter which slot is occupied, the first occupied slot will have port numbers 1 through 4, the second one will have 5 through 8, and so on.***

   For example, if there are two 4-port cards in the Sbus on a system, and they occupy ecpt1 and ecpt2, the card that occupies ecpt2 will still take ports 5 through 8. Previously, ecp would have taken ports 9 through 12.
4. Follow the usual startup sequence as described in the *ITU Integrated SS7, V5.0, System Supplement* (61090301250).

1.3 ENHANCEMENTS

1.3.1 Three New CktInt.cfg Feature Flags

There are three new feature flags for the CktInt.cfg file:

- **-FEATURE_FLAG10** — Suppresses protocol violation messages from the log file.
- **-FEATURE_FLAG11** — Ignores the inpulse rule number in ckt_ss7_to_sds file.
- **-FEATURE_FLAG12** — When a $70 command gets rejected with "Invalid Class of Service," cktint releases a call, if one exists, and sends an $EA REL report to the host and a $70 on-hook command to the SDS/VCO.

1.3.2 Two New Parameters for CktInt to Support Outbound COT

CktInt.cfg is enhanced with two new parameters to support outbound COT:

- -OUT_COT_ORULE**rule**, where **rule** is the outpulse rule you set up for COT
- -OUT_COT_HZ**hz**, where **hz** is either 2010 or 1780 hertz

To use outbound COT messages, add these two parameters to the end of your CktInt.cfg file and set up the following outpulse rule and supervision template:

Outpulse Rule:

TIME SUP 5

FINAL SUP #

Supervision Template #:

TIME OK

ISUP Tone OKREP

If -OUT_COT_ORULE**rule** and -OUT_COT_HZ**hz** are not configured in the CktInt.cfg file, the following errors will be printed:

<CKTINT: CktInt ERROR PID:12318 Wed Jun 18 10:54:06 1997

**ERROR Outbound COT frequency not set, using 2010 Hz

<CKTINT: CktInt ERROR PID:12318 Wed Jun 18 10:54:06 1997

**ERROR Outbound COT outpulse rule not set, using orule 2

1.4 CORRECTED PROBLEMS

The following are the corrected problems in ITU Release V5.0 FSR01:

U703140003 (CSCsf73844)	If only one host was up and running in a multihost environment, the ROUNDROBIN mode for host load sharing did not work correctly. This issue has been fixed.
U703230001 (CSCsf73857)	If the SDS/VCO Host Control of Call Load feature (set from the System Host Configuration screen of the SDS/VCO Administration Console) was enabled when CktInt started up, all of the $70 commands CktInt sent to the SDS/VCO to ensure that all of the SS7 ports were on hook were rejected with a network status byte of 3C ($6C or $72 command received before host issued $C0 04 command). If the Host Control of Call Load feature was not enabled, the $C0 04 command failed, but the $70 commands succeeded. Cktint now supports both the Host Control of Call Load feature and processing of $C0 04 commands.
U706160003 (CSCsf74099)	All outgoing continuity check requests initiated by the Host via the SS7 $49 command coded “continuity check required on this circuit” or “continuity check required on the previous circuit” now work.
U708200007 (CSCsf74268)	If an SS7 $49 Command was rejected, the host that sent the command became permanently associated with the circuit (or circuit group) specified in the command. This could stop other hosts from using the circuit. This issue has been fixed.

U802250002 (CSCsf84643)	When cktint received a BLO from the network, the circuit state became remotely blocked in cktint. If the network then sent a CCR, the circuit state became active instead of remotely blocked in cktint. This issue has been fixed.
U803170003 (CSCsf84744)	If a continuity check has been performed and a COT indicating “continuity check successful” is received, cktint disconnects the internal loopback.
U803250008 (CSCsf84787)	When cktint received a BLO from the network, the circuit state became remotely blocked in cktint. If the network then sent an RSC, Newnet EBS would pass a UBL message with a MAINTENANCE primitive instead of an UNBLOCK or RESET primitive. Since cktint did not process the UBL, the circuit was stuck in a remotely blocked state. This issue has been fixed.
U804140002 (CSCsf84825)	If the disconnect control byte in the SS7 $49 command was dynamically changed by the host, cktint did not adapt to these changes. This issue has been fixed.
U804160001 (CSCsf84828)	If the system switched over after receipt of a SUS message on an active call, the subsequent RES message was not passed to cktint from EBS on the newly active side. This issue has been fixed.
U805180002 (CSCsf84888)	When an IAM with continuity test indication, followed by a COT failed message, is received and a CCR is not received, timer T27 now fires and sends a RSC to the network.
U807100001 (CSCsf85015)	Cktint no longer prints error messages when a COT failed message is received from the network for either a present or previous circuit.
U808060001 (CSCsf85051)	At times, no COA was sent from the MTP level in response to a COO from the network. This issue has been fixed.
U809170004 (CSCsf85118)	After a switchover, when a $70 command got rejected with an NSB of 0F (Invalid Controlling Host), cktint marked the circuit as locally blocked. This issue has been fixed.
U810140005 (CSCsf85196)	Autostart script S85ss7 now works properly.
U812150002 (CSCsf85290)	When a $49 command is sent from the host, cktint automatically sets the disconnect control bits and adapts to the $49 disconnect bit settings.
U812170001 (CSCsf85287)	When a $70 command was rejected with "Invalid Class of Service," cktint hardware blocked the circuit. By enabling -FEATURE_FLAG12 in the CktInt.cfg file, cktint now releases a call, if one exists, and sends an $EA REL report to the host and a $70 on-hook command to the SDS/VCO
CSCdk84405	Cktint cored when accessing port in wrong port. This issue has been fixed.
CSCdk85064	Incorrect acknowledgments were sent to the host for successful $49 commands in extended mode. This issue has been fixed.

1.5 REFERENCES

You may want to refer to the following documents that apply to your configuration:

- *ITU Integrated SS7, V5.0, System Supplement*
- *Generic V4.2 or V5.x Release Notes*
- *V5.0 Extended API Programming Reference*

Section 2
SYSTEM REQUIREMENTS

2.1 INTRODUCTION

This section provides a listing of system requirements for running ITU Integrated SS7 ISUP, V5.0 FSR01. These requirements are divided into hardware, firmware and software. Contact Summa Four, Inc. Technical Support for any site-specific information.

2.2 HARDWARE REQUIREMENTS

ITU Version 5.0 FSR01 requires the following hardware:

- one of the following systems:
  - — an SDS-1000
  - — a VCO/80
  - — a VCO/20 with an SS7 VME shelf
  - — a VCO/4K with an SS7 VME shelf
- a SPARC CPU5V card
- 32 MB RAM (2K Mode) or 64MB RAM (4K Mode) available on the system

2.3 FIRMWARE REQUIREMENTS

There are no special firmware requirements for V5.0 FSR01. However, the firmware in the SDS-1000 or VCO must have the appropriate revision level required by the Generic. For information, refer to the *Generic Release Notes*.

2.4 SOFTWARE REQUIREMENTS

Version 5.0 FSR01 requires the following software:

- SDS/VCO Generic V4.2 (Standard/2K Mode only) or Generic V5.x
- Solaris Release V2.4 or V2.6

Valid software checksums and file sizes for the ITU Version 5.0 FSR01 software running on either Solaris V2.4 or V2.6 are listed in *Table 2.1*.

Table 2.1: Cktint Version: ITU Version 5.0 FSR01

Filename	Checksum /usr/bin/sum	Size ls -l
cktint.cpio.Z	29217 3521	1802595
install_cktint.sh	40085 11	5140

NOTE: To get the version of cktint, run the following command in ***$XNV****:*

% version cktint

Valid software checksums and file sizes for the AccessManager Version 3.5.3 FP3 QF26 software running on either Solaris V2.4 or V2.6 are listed in *Table 2.2*.

Table 2.2: EBS Version: 3.5.3_FP3_QF26

Filename	Checksum /usr/bin/sum	Size ls -l
ebs.cpio.Z	43397 11622	5950107
install_ebs.sh	15890 7	3523

NOTE: To get the version of EBS, run the following command in ***$EBSHOME/access****:*

% more version.dat

Section 3
SPECIAL CONSIDERATIONS

3.1 INTRODUCTION

This section describes the special considerations you should be aware of while using ITU Integrated SS7, V5.0 FSR01. This section provides explanations for the following areas:

- Commands and reports
- Debug flags
- Host Considerations
- Redundancy
- Routing alarm messages to the console

3.2 COMMANDS AND REPORTS

3.2.1 CktInt Requires $DA And $DB Reports

Do not suppress the $DA and $DB Reports in your SS7 application. These reports are required by CktInt for non-SS7 to SS7 calls and SS7 to non-SS7 calls because of the disconnect control byte. Cktint must see an on-hook.

3.3 DEBUG FLAGS

Turning on the debug flags may negatively impact performance.

NOTE: Make sure all debug flags are turned off for production systems.

3.4 HOST CONSIDERATIONS

3.4.1 Multiple Hosts Affect Call Handling

Additional TCP connections affect SDS/VCO call handling capacity. Optimal performance can be achieved with four or fewer simultaneously active TCP connections.

3.5 REDUNDANCY

3.5.1 No Switchover When Ethernet Fails

If Ethernet fails, the system does not switch over.

Resolution

Add a routine to your host application that can detect when the Integrated SS7 system is unreachable and initiates a switchover.

3.5.2 ASCII Terminals On Redundant Systems

If you turn the Integrated SS7 console off, or power to the terminal is lost, the SPARC5V CPU may abort and return to the boot prompt.

It is possible to connect a single ASCII terminal to both side A and side B via an electronic A/B selector switch. However, the selector must be capable of providing surgeless, spikeless change-overs. If the selector switch does not have this feature, the SPARC5V CPU may abort and return to the boot prompt when a change-over occurs.

3.5.3 Calls During Switchover

Only stable (answered) calls are preserved by the system during a redundancy switchover.

3.5.4 Loss of Network or SS7 Selector Switch Links

The loss of any network links do not cause a switchover. Also, the loss of SS7 selector switch links do not cause a switchover. If you are going to perform maintenance on any of the links, you must first switch the system over to the standby side.

3.5.5 SDS and VCO/80 Do Not Boot Without SPARC CPU Installed

An SDS or VCO/80 system configured for SS7 does not boot if one of the SPARC CPUs is removed from the Control Subrack. The NBC does not download, the NBC's LEDs stay illuminated, and the SDS/VCO system freezes.

3.6 ROUTING ALARM MESSAGES TO THE CONSOLE

To route alarm messages to the system console, complete the following steps:

1. Start the MML utility by entering the following command and pressing **Return**:

   mml 0

2. At the system prompt, enter the following command and press **Return**:

   MODIFY-ALARM-CONFIG:DISPLAY=ON;

3. Exit the MML utility by entering the following command and pressing **Return**:

   EXIT:;

Section 4
DESIGN CONSTRAINTS

4.1 INTRODUCTION

Summa Four, Inc. has identified and evaluated design constraints in Integrated SS7 ISUP V5.0 FSR01. This section provides explanations and, where applicable, workarounds in the area that follows:

- Initialization
- Redundancy

4.2 INITIALIZATION

4.2.1 U611070001 / CSCsf63489: CktInt Loses Info. When No Host Connected

CktInt does not maintain a socket connection dedicated to the SDS/VCO. If no host is connected, circuit state change information from the system is lost.

4.3 REDUNDANCY

4.3.1 U705050007 / CSCsf73966: No Switchover When SS7 Is Stopped On Active Side

The system does not switch over automatically when one of the following conditions occur:

- If the Active CktInt and EBS stacks are stopped
- If CktInt hangs or dies
- If any EBS stack process dies and the MONITOR_OPTION is OFF (needs to be off to fix the problem where the Ethernet cable is detached and the system will flip flop sides).

Resolution

Set the All Host Link Failure Action, on the SDS System Host Configuration Screen, to Conditional Switchover. When the Conditional Switching option is selected, a major alarm is generated if all host links fail and a system switchover is initiated if the Standby controller is on-line (file sync. completed) and has active host links.

4.3.2 U707160004 / CSCsf74160: Associated Ports Are Lost After Switchover

CktInt associates ports as specified in the SS7 $49 Command and the association is maintained until call tear down. If the controlling port is an SDS/VCO port, and the associated port is an SS7 port, the two ports are associated until one or the other is released by the host. When one of the ports is released, CktInt automatically releases the other.

However, if the system switches over while the call is stable, CktInt, on what is now the Active side, has no knowledge of port association established prior to switchover. This is because the CktInt on side A does not communicate with CktInt on side B and vice versa. If the host attempts to release the call by its port association, the release will fail.

Resolution

Do not use the port association option in host applications.

Section 5
KNOWN FUNCTIONAL CONSTRAINTS

5.1 INTRODUCTION

Summa Four, Inc. has identified and evaluated functional constraints in Integrated SS7 ISUP V5.0 FSR01. This section provides explanations, and where applicable, workarounds for functional constraints in the areas that follow:

- Initialization
- Redundancy/Switchover

5.2 INITIALIZATION

5.2.1 U708200008 / CSCsf74269: Warmboot With Autostart Takes 20 Minutes

If autostart is configured and the system is warm booted, it will take at least 20 minutes for the SS7 software to start. This will ensure that the VCO is entirely operational before the SS7 software is started.

Resolution

You may disable the autostart feature. If disabled, the SS7 software must be manually started. To disable autostart, complete the following steps:

1. Log in to the Integrated SS7 system as **root**.
2. Enter the following command and press **Return**:

   rm /etc/rc3.d/S85ss7

3. Reboot the Sparc and autostart will be inactive.

To re-enable autostart, complete the following steps:

1. Log in to the Integrated SS7 system as **root**.
2. Enter the following command and press **Return**:

   cp /export/home/cktint/cktint-x/bin/S85ss7 /etc/rc3.d/S85ss7

3. Enter the following command and press **Return**:

   chmod +x /etc/rc3.d/S85ss7

4. Reboot the Sparc and autostart will be available.

-OR-

Re-install the cktint software. Autostart is automatically enabled with cktint software installation.

5.3 REDUNDANCY/SWITCHOVER

5.3.1 U803110006 / CSCsf84706: Synchronization Failure

If EBS and cktint are brought down and back up on the standby side, sometimes the “tli” process does not sync up with the tli process on the active side and the following messages are repeatedly displayed:

srv_connect:: An event requires attention

Enabling connect timer ....

This impacts the redundancy operation of the system.

Resolution

Kill tli processes on both sides. Then, bring both tli processes back up.