Product Troubleshooting Guide

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Rev	Description of Change	Originator
1	Initial Release to JDE	B. Sibbick
2	Minor updates to Projector Status LEDs, IMCB, ICP and added V2.0 to Upgrade Issues	B. Sibbick
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5		
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Part Number	020-100662-01	Rev	2
Description	CP Series 2 Troubleshooting Technical Reference Information		

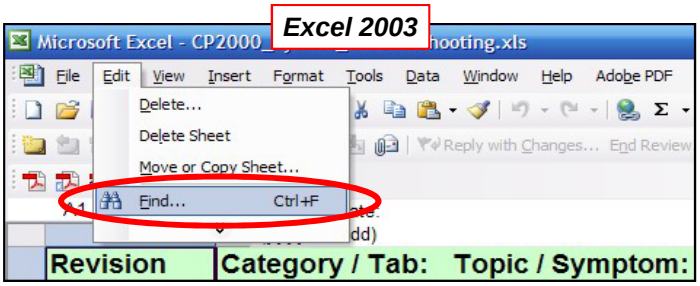
How to use and search this document

If you wish to search this eintire workbook for a specific error (like a cut+paste direct from a system log,) please follow these instructions:

1) Ensure that you are searching the whole workbook (all tabs) - not just the sheet you are on.

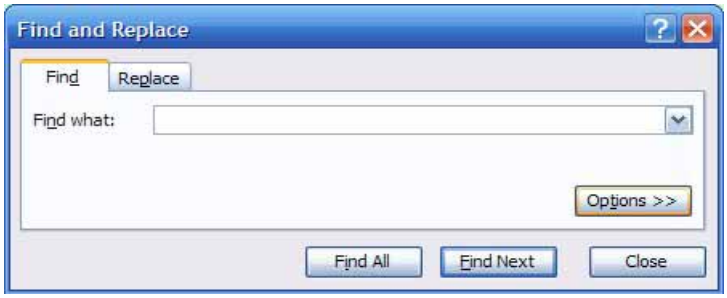
a) Go to: ***Edit-->Find***

Excel 2003

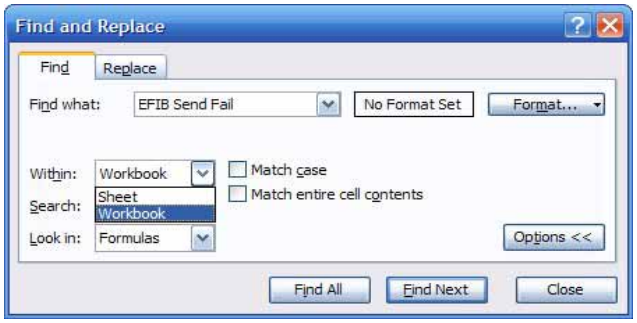


Excel 2007

b) From the "Find" dialogue select **"Options>>"**



c) Select "Workbook" from the "Within" drop-down



d) Paste in or type in your error string then hit **"Find Next"**

2) If you are trying to search and nothing comes up, follow these guidelines:

1) **Do not** include the time or date stamp:

Example: ***Incorrect:*** 2006AUG28 20:47:18 DiagFail-IntfProcConn: F3FFFFFF FFFFFFFF

Correct: DiagFail-IntfProcConn: F3FFFFFF FFFFFFFF

2) Try removing specific number codes:

Example: ***Too Specific:*** DiagFail-IntfProcConn: F3FFFFFF FFFFFFFF

Refined: DiagFail-IntfProcConn

If there is still no return once you have refined the string, there may be no record. Please forward the error log for help.

Powering up LED sequence

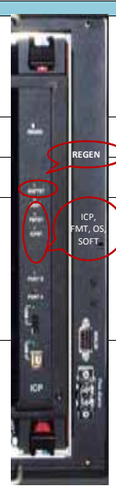
1) When Power is initially applied, the STBY LED on the PIB will come on
2) After a couple seconds the RUN LED will turn yellow.
3) Next the Marriage button, IMB, LD, ICP and PIB LEDs will flash red then green
4) About 15 seconds after AC has been turned on, the PIB LED will turn green and the RUN LED will blink
5) Check all the LEDs on both sides of the rear panel are on at this point before they turn off.
6) After about 30 seconds you will see the Christie Logo on the TPC then wait 40-50 more seconds for the

Rear Panel LEDs

OFF	OFF	GREEN	Power is on and Lamp is on
OFF	OFF	BLINKING	Power is on Lamp is off
OFF	YELLOW	OFF	Standby Mode
OFF	BLINKING	OFF	Warming up
OFF	BLINKING	BLINKING	Cooling down
BLINKING	OFF	OFF	New critical alarm or warning
RED	OFF	OFF	Critical alarm or warning acknowledged by operator

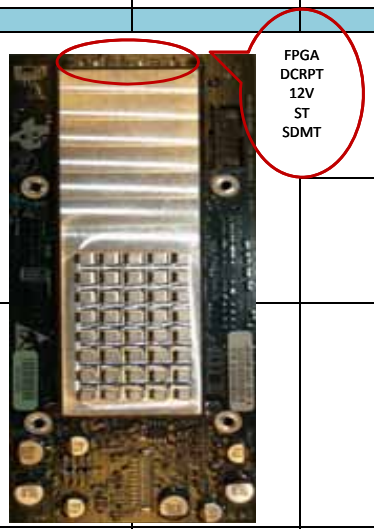
The ICP (Integrated Cinema Processor) communicates via Ethernet thru the router to the TPC. Similar to FFIB function and some processor board functions in Series 1

REGEN only on when Main Power is on	ICPST (ICP state)	FMTST (Formatter)	OSST (operating system)	SOFTST (software)	Root cause
OFF	OFF	OFF	OFF	OFF	ICP hardware failure or Projector is in standby
BLUE	RED	RED	OFF	OFF	ACOK and/or DCOK not asserted, Check LVPS harness connections and LVPS. The TPC will report LVPS errors on Solaria 1.3 and newer.
BLUE	RED	GREEN	OFF	OFF	OS corruption (ICP FPGA failed to load)
BLUE	GREEN	RED	OFF	OFF	OS corruption (Formatter FPGA failed to load)
BLUE	ORANGE	GREEN	OFF	OFF	OS corruption - Failed loading Kernel into RAM. ICP FPGA stuck in boot mode
BLUE	GREEN	ORANGE	OFF	OFF	OS corruption - Failed loading Kernel into RAM FMT FPGA stuck in boot mode.
BLUE	GREEN	GREEN	OFF	OFF	OS corruption - Failed loading Kernel into RAM
BLUE	GREEN	GREEN	ORANGE	OFF	OS corruption - Failed booting operating system
BLUE	GREEN	GREEN	RED	OFF	OS corruption - Failed loading kernel into RAM
BLUE	GREEN	GREEN	GREEN	OFF	OS corruption - ICP listener application failed
BLUE	GREEN	GREEN	GREEN	RED	OS corruption - Application failed to startup correctly
BLUE	GREEN	GREEN	GREEN	GREEN	OS corruption - ICP listener application failed
BLUE	ORANGE	GREEN	GREEN	BLINKING	ICP FPGA in boot mode - Re-install release - **May be used in the future…**
BLUE	GREEN	ORANGE	GREEN	BLINKING	OS corruption - Formatter FPGA stuck in boot mode. Re-install release.
BLUE	GREEN	GREEN	GREEN	BLINKING	**ICP booted completed, check table below for debugging information.**

Symptom	Possible Causes	Sample Error in Log	Solution	Notes	
LD cannot establish communication with the ICP" and "Connection to the ICP has been lost"	LVPS or harnessing to the backplane		IF ICPST and FMTST are red, debug the LVPS connection to the backplane, and the LVPS. IF they DON'T have ICPST, FMTST, OSST green and SOFTST blinking green, try power cycling to standby and back to main power.		
"Connection to the LD has been lost" "Connection to the ICP has been lost"	Backplane is not getting both ACOK DCOK signals from the LVPS, or there is a problem with main power	None - ICP isn't allowed to boot	Check LVPS or harness from LVPS to the backplane. Ensure Christie software release 1.1.2.4 or newer installed Swap PIB	The ICP, LD and IMB are the only boards not active in standby. If the main LVPS fails, this may be the symptom, unless you see ICPST/FMTST LEDs both coming up red, see LED table above	
"ICP has a problem with it Certificate/Keys"	Old software installed. < Solaria 1.4	2010/06/17 00:25:28.747215 E ValidateCert Fail--Invalid Cert (Subject.CN content) 2010/06/17 00:25:28.747324 E GetCert Fail (ValidateCert)	Update software to the newest release. If the problem persists, the ICP will have to be replaced.	This used to be a nuisance failure. If this error comes up with Solaria 1.4 or later, it means that the ICP has the wrong certificate programmed and must be returned to Oncore.	
"DMD type mismatch"	ICP release installed in another projector or light engine disconnected when upgrade was run.	2010/06/16 01:09:41.451872 E Satellite CineLink enable failed … 2010/06/16 01:09:45.690779 E Frame Store Test Failure at: row 1 col col 0 Good bluegreen 0 Test bluegreen 4020 Good red 0 Test red 488 2010/06/16 01:09:45.747919 E Command library initialization failed during function 21 2010/06/16 01:09:45.865991 E Main: ERROR: Could not initialize the command library	Re-install ICP software with current engine attached.	Solaria 1.4 and newer allows TI-only re-installation through the upgrade page. Failure looks the same as a missing light engine.	
"ICP Self Test Failed" "ICP Reported System Error" "FMT Satellite Configuration Error" "Blue Satellite Firmware Configuration Error" "Blue Satellite Link Error" "Green Satellite Firmware Configuration Error" "Green Satellite Link Error" "Red Satellite Firmware Configuration Error" "Red Satellite Link Error"	Can't connect to any satellite boards.	2010/06/16 01:09:41.451872 E Satellite CineLink enable failed … 2010/06/16 01:09:45.690779 E Frame Store Test Failure at: row 1 col col 0 Good bluegreen 0 Test bluegreen 4020 Good red 0 Test red 488 2010/06/16 01:09:45.747919 E Command library initialization failed during function 21 2010/06/16 01:09:45.865991 E Main: ERROR: Could not initialize the command library	Check LEQD that LEQD is fully seated	Failure looks the same as a mis-configured light engine.	
"ICP has an invalid RTC time"	RTC read failed, or battery unseated.	1970/01/01 00:02:58.013978 I User logged into External 2010/05/11 12:45:23.006617 I System Status: strobe	Check RTC batter on ICP is fully seated and has not been tampered with	This used to be a nuisance failure. If this error comes up with Solaria 1.3 or later, it is a legitimate failure and should be investigated.	
ICP will not upgrade	Check LED states above for an explanation	Varies	Depends on LED states		
ICP is missing test patterns	OS corruption, or user manually deleted the test patterns.	None	Re-install the ICP software	Solaria 1.4 and newer allows TI-only re-installation through the upgrade page.	
Marriage Failure, or Upgrade Failure	Secure Processor error, or legitimate upgrade failure.	2010/06/30 06:01:39.201666 I User 'Service' of group 'Service' logged into OEM 2010/06/30 06:01:39.270854 E Semaphore error: errno=11, semtimedop: timeout 2010/06/30 06:01:40.277874 E Semaphore error: errno=11, semtimedop: timeout 2010/06/30 06:01:41.739845 E Semaphore error: errno=11, semtimedop: timeout 2010/06/30 06:01:41.739949 E GetCert Fail (RetrieveFlashData) 2010/06/30 06:01:56.913757 E ICP Secure Processor not responding. 2010/06/30 06:02:42.626182 I System Status: strobe	Upgrade software to Solaria 1.4 or newer	Solaria 1.4 and newer contain an ICP release that fixes the Secure Processor errors.	
ICP has 0 Disk Space	Projector running software < Solaria 1.4	None	Upgrade software to Solaria 1.4 or newer	If this issue occurs you will see issues when you try to change channels because the ICP will not be able to load the Channel files, such as the MCGD or TCGD. **The upgrade to Solaria 1.4 will purge all log files, and prevent the failure from coming back.**	
Signature test failures	indicate a problem with the datapath for at least one of the satellites. There is a nuisance signature failure in ICP software prior to 2.1.	2010/07/09 15:20:17.544965 E Signature Test Fail Good data Is byte first is: 2010/07/09 15:20:17.545394 E Signature Test Fail Bad data Is byte first is:	If one channel is a mismatch, check the LEQD is fully seated, flex harness routing, satellite configured LED. If all three match each other but not the Good data, or match each other and Good data, or are all mismatched, upgrade the software to Solaria 1.4 or newer and retry.	These were nuisance failures with earlier TI software releases, especially if the IMB was the selected input port on power-up.	
None - error noticed in ICP system log	Unknown	2010/06/17 10:59:45.032570 E Command library initialization failed during function 13	ICP releases after ICP release 1.2 call this error a function 12 error. If this error message is not frequently repeated the board is good, if it is a consistent error, the board must be returned for investigation.	This error message shows up when the password file on disk does not match the password file in flash. The password file on disk will be replaced on a power cycle.	

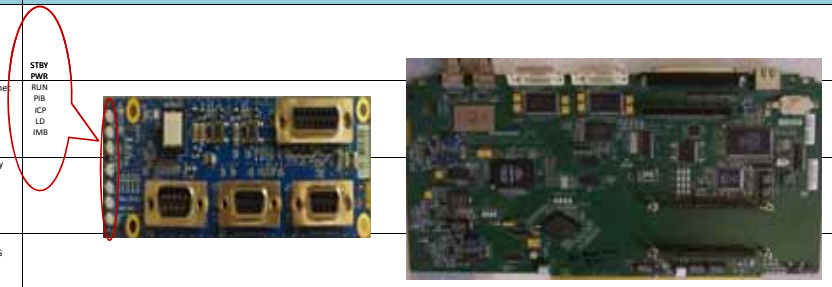
The Link Decryptor (LD) aka Enigma is a daughter board of the PIB. The LD Decrypts the protected video input both from the SDI						
FIPS	**SDMT (service door & marriage tampers)**	**ST (security tamper)**	**FPGA**	**VS (vertical sync)**	**DCRPT (decrypt)**	
				ANY STATE	GREEN	married board displaying cinema content
				ANY STATE	**ANY STATE**	when playing unencrypted content
				BLINKING		actively receiving video
					RED	unmarried board receiving video
ANY STATE	**ANY STATE**	**ANY STATE**	**OFF**			FIPS Event – LD will not connect to the ICP, TPC, marry or play content.
OFF	**RED**	**RED**	**RED**	**RED**	**RED**	Can't Login to LD External Ethernet Port, will be missing the login list
OFF	**ANY STATE**	**ANY STATE**	GREEN	**ANY STATE**	**RED**	Unmarried board
OFF	GREEN	GREEN	GREEN			ST green indicates an armed security enclosure, and the FPGA green indicates a successful configuration. No problems

Symptom	**Possible Causes**	**Solution**	**Notes**
Connection to the LD has been lost	Check LD LEDs to see if FPGA LED is off. Root cause unknown	Replace LD due to corrupt FPGA	This LED is difficult to see because it's almost behind the component on the corner. flash corruption, installation failures, tamper events and switch malfunction will ALL cause this error.
Marriage between the ICP and LD has been broken	There has been a security tamper event. Security Ring has been removed or unlatched. The ICP, PIB or LD have been removed	Check for physical and logical tampers Replace LD	
LD log space is running low, the LD has no more log space	Cinema Server hasn't downloaded the logs	Contact your Cinema Server Vendor	If the logs are full the LD will not accept any Cinelink-2 keys until enough log records have been read by the Security Manager to allow the LD to create new log records. If these logs are not freed then the LD will stop working. It's the Cinema Servers responsibility to read/clear the LD's logs
Movie will not play	LD Key Store is full and Cinema server can't upload a new key	The easiest ways to clear the keystore are: • Reset the DLP Electronics via the TPC under Diagnostics > DLP Management. This option is only available to Admin and Service Users • Power cycle the projector • Reset the DLP Electronics via the TI Control App.	It is the Cinema Server's responsibility to manage the LE Key Store. This error currently not logged anywhere and will be very difficult to diagnose in the field.
Marriage failure	Enigma failed to marry	Upgrade the LD and retry	

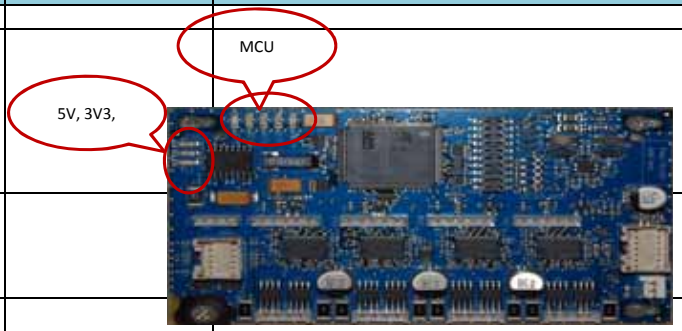


PIB (projector intelligence board) similar functions as PCM, interface and processor on Series 1 projectors.							
STBY (standby power)	PWR (main power)	RUN (heartbeat)	PIB	ICP	LD	IMB	NOTES
OFF	OFF	OFF	OFF	OFF	OFF	OFF	No standby power (STBY LED indicates the standby power is on)
GREEN	OFF	OFF	BLINKING	OFF	OFF	OFF	Normal Standby power Mode
GREEN	OFF	OFF	NOT BLINKING	OFF	OFF	OFF	NIOS (software) not running on PIB. Replace PIB.
GREEN	ANY STATE	BLINKING	BLINKING	ANY STATE	ANY STATE	ANY STATE	communication failure, cannot talk to the TPC. You can't trust the ICP/IMB/LD LEDs at this point.
GREEN	GREEN	OFF	BLINKING	RED	ANY STATE	ANY STATE	TPC is not connected to the ICP
GREEN	GREEN	OFF	BLINKING	ANY STATE	RED	ANY STATE	TPC is not connected to the Link Decryptor (Enigma)
GREEN	GREEN	OFF	BLINKING	ANY STATE	ANY STATE	RED	TPC is not connected to the IMB
GREEN	GREEN	OFF	BLINKING	GREEN	GREEN	GREEN	Normal operation with LD and IMB installed. If one is removed, expect its LED to be red/off.

Symptom	Possible Causes	Solution	Notes
Connection to the PIB has been lost	PIB LED is not flashing after 25 seconds	Replace the PIB	
TPC is reporting "Connection to the PIB has been lost" and the RUN LED on the PIB is flashing	No communication between the PIB and TPC Ethernet not connected Harness not connected at P10 on backplane. Potential network storm on external Ethernet	Unplug external Ethernet	
STBY LED is off	No standby power (STBY LED indicates the standby power is on). Verify projector is receiving power	Replace standby supply	
PWR LED is off	No main power (PWR LED on indicates the main power supply is on) Projector is in standby	Check LVPS. Check harnesses to LVPS, UPS input	
IMB LED is off	TPC is not communicating with the IMB, IF an IMB is enabled on the TPC UI. Projector is in standby		
HDSDI flashing	This is likely a PIB failure caused by an intermittent error on HDSDI B. The error shows up when the B channel cuts in and out, altering the colourspace on a dual-HDSDI setup	Replace the PIB	



EVB (Environmental board) responsible for physical fan and temperature monitoring, also power and communication pass thru for IMCBs						
24V STBY (LD4)	**24V (LD5)**	**12V (LD6)**	**Heartbeat (LD1)**	**5V (LD2)**	**3V3 (LD3)**	
GREEN	GREEN	GREEN	BLINKING	GREEN	GREEN	EVB should have 3 solid green LEDs and one blinking LED (next to the big IC). EVB heartbeat led will blink about 2 times per sec in boot mode and once per second while running main code
Symptom	**Possible Causes**	**Solution**	**Notes**			
EVB Failure	No connection at EVB	Check EVB connections and verify LEDs are lit on the EVB	in standby mode the EVB should have 3 solid green LEDs and one blinking LED (next to the big IC)			
			The TPC communicates to the EVB via the PIB. The Nios on the PIB converts the Ethernet signals from the TPC to RS-422 and visa-versa.			

IMCB (Internal Motor control board) Lamp LOC and ILS						
MCU (LD1)	**Motors (LD2-LD5)**	**5V (LD6)**	**3V3 (LD7)**	**24V (LD8)**		
BLINKING		GREEN	GREEN	GREEN	IMCB heartbeat led will blink about 2 times per sec in boot mode and once per second while running main code. The motor LEDs blink when the motors are moving.	
Symptom	**Possible Causes**	**Solution**	**Notes**			
TPC Has Lost Connection to the						
IMCB Calibration Failure	Sensor failure or motor failure, Focus motor flag on 2220/30 series may be way out. Incorrect motor or sensor wiring. Wrong motor on wrong connector etc.	Manually turn focus knob until sensor blade just crosses sensor, then rerun calibrate. Check Motor and sensor wiring.				
IMCB ILS main version mismatch error message	Board swap without software upgrade Board shorting 24V to ground	Reinstall software allowing New iamb to be updated. Replace IMCB	Try disconnecting the power to the IMCB and reconnecting prior to swapping of board			
Motor movement causes TPC to reset	Motor draw causes overload of standby supply	Update software	Check LVPS, projector thinks it's in full power mode			
ILS emits a constant whine	Motor failure Holding current on ILS steppers	Replace faulty motor Replace IMCB with IMCB2	Determine the root cause of failure, is the noise coming from an individual motor, only when ILS is moving, during calibration etc			

TPC (Touch Panel Controller)			
Symptom	**Possible Causes**	**Solution**	**Notes**
Projector is powered but the TPC screen is blank/no power	TPC is not switched on. Standby supply failed	Ensure there are green STBY leds on the PIB Check for blinking LEDs next to the LAN port of the TPC Check to see if the TPC is turned on.	When the power switch is ON the switch is in the up position and the ON lettering is shown below the switch. If the TPC power button is in the OFF state the switch is down and the OFF lettering at the top of the switch is present.
Mismatch Projector serial number	TPC was swapped with another and the serial number is not the one stored in the projector	When prompted by the TPC to select which serial number is valid for this projector Select the serial number that corresponds to the license label on the projector	
TPC not reporting correct time even though timezone is set correctly	they were set incorrectly at Oncore 3 hours off, not inhouse 5 hours off. Note that no current server software checks LD time, but they are supposed to start in the future.	As per DCI rules, there is no way to change the time of the LD in the field more than +/- 15 minutes per year. Therefore, you will need to swap the LD to correct the issue.	Until such time as you get your new LD, the old one should keep working fine. To our knowledge, no server companies are actually checking the LD time at the moment to verify that it matches the SM time. But they could add that check in the future, at which time the screens will go black.

Connect via: Ethernet at PIB use Kore Librarian, ICP/Enigma Control App, via FTP or Solaria FCT Application			
Symptom	**Possible Causes**	**Solution**	**Notes**
Cant connect to the projector	Computer's network card configuration, ensure you have the right IP address and Subnet Mask. When connecting with Kore ensure you use port 5000		
MAC address error	In Solaria package versions earlier than v1.2 there was a bug that allowed the MAC to be deleted v1.2 and newer will report that you have an invalid MAC address	You must obtain a new MAC address and installation instruction from our Christie Service department at tech-support@christiedigital.com	MAC Address stands for Media Access Control address and is a unique number given to a device on a network. A valid Christie MAC address will start with 00:1A:D7 and has 17 characters including the ":"

Upgrade Issues			
Symptom	**Possible Causes**	**Solution**	**Notes**
Software version mismatch	multiple hardware version numbers on various boards (ex LD, EVB, iamb)	Upgrade software on projector	
Version Mismatch Warning for PIB CPLD	Not Fully repowering the projector	Turn off breaker to load the newest version of the PIB CPLD	

When upgrading or Downgrading while the 2.0 TPC code is installed here are the conditions that will not allow an upgrade			
Error message	**Possible Causes**	**Solution**	**Notes**
Upgrades can not be performed with the lamp on	Lamp On	Dialog allows you to turn off the Lamp Select OK to turn Lamp OFF	
The package you are trying to install is older than 1.2	Package version < 1.2	Select a different package version	
TPC is not compatible with older software	Package version < 1.4 and you are using a TPC 650H	Select a different package version	
This package is not compatible with the ICP version currently installed	Package version < 1.3 and you have a 16 meg ICP	Select a different package version	
This package is not compatible with the ICP version currently installed	Package version == 80.0.0.1 and you have a 16 meg ICP	Select a different package version	
This package is not compatible with the ICP version currently installed	if the new package is 1.2.x and the ICP installed is not 1.2(126) - virtual memory bug	Select a different package version	
IMCB is not compatible with older software	package version < 1.4 and IMCB2 installed	Select a different package version	
The package you are trying to install is not compatible with 4K	package version < 2.0 and 4K projector	Select a different package version	

Image Issues			
Symptom	**Possible Causes**	**Solution**	**Notes**
Projector displaying a solid Black (or Green) screen.	A black screen error occurs when the Link Decryptor is not processing video content and produces a fixed, solid image instead. A black screen will appear when not processing 2D content and a green screen will appear when not processing 3D content.	Check physical and logical tampers Ensure security ring is locked in place and LD/ICP are installed properly Reseat ICP Check Marriage is established Ensure there are Install version 1.2.0 and firmware 21.1.Z or greater. Once installed run the DoReMi server to clear the Link Decryptor log files and allow encrypted content to be played through the link decryptor	LD security covers must be intact. These are the metal covers on the LD card itself. The battery needs to be charged. The LD keys and certificate must be intact. The LD cannot be repaired in the field and the battery cannot be changed in the field.
3D flicker/wavy issue	The L/R Display Sequence is set to Right (R1L1 R2L2). This will cause an issue with the 3D video being extreme to the right, wavy of flickering.	In the 3D Channel setup panel -> Set the L/R Display Sequence to Left (L1R1 L2R2) to fix this issue.	
Lens mount doesn't move	most commonly due to a worn cable connecting from the projector to the motorized lens mount	Replace cable	
Yellow image	Blue formatter failure Blue missing - datapath error message	Check cables to formatter board Check interposer connection	
Cyan image	Red formatter failure Red missing - datapath error message	Check cables to formatter board Check interposer connection	
Image is pink/Magenta	Green formatter failure Green missing - datapath error message	Check cables to formatter board Check interposer connection	
HINT: Display white or black test pattern. On black you may see artifacts of the color that is the problem. for example if there a red line being displayed on the black pattern then it's likely that there is a problem with the red datapath.			
Flickering means that some of the lines in the image are not being displayed			
Flashing means that the whole image is blanking out			
Sparkling means that there are individual pixels that are flashing the wrong color			
Distortion means that the one color is off or the image is not the right shape/size			

Power Supplies					
Symptom	**Possible Causes**	**Example of failure in logs**	**Solution**	**Notes**	**Acceptable V ranges**
Failed to connect to the ICP and LD	LVPS	09/07/2010 03:49:15.849 Engineering Error *** Failed To Connect to Enigma icp2.brimstone.cds.int*** 09/07/2010 03:49:15.739 Engineering Error *** Failed To Connect to ICP icp2.brimstone.cds.int***	Replace LVPS Replace PIB		3.3v, Range = 3.20 – 3.40 2.5v, Range = 2.4 – 2.6 1.8v, range = 1.75 – 1.85 1.2v, range = 1.15 – 1.25
AC Power Critical and DC Power Critical error messages	*harness only slightly plugged into P8 on the backplane ACOK is the bottom 2 pins, DCOK the next 2 up is not fully seated, you'll likely see ACOK problems *If the harness to the LVPS is disconnected, we read a failure of both ACOK and DCOK.		LVPS or harness connected to LVPS	On Solaria, there are no voltage rails used directly for satellite or board power therefore no fine tuning of voltage rails is required. These signals are run directly from the LVPS through a harness, through the backplane, and onto the PIB with NO active circuitry in between. We have never seen a failure of ACOK/DCOK caused by the backplane or PIB (ACOK/DCOK status signals are driven by the LVPS) These two signals, ACOK and DCOK are open drain signals with pull-ups on the backplane. These signals are NOT critical for powering up the LVPS and power may well be on and 100% OK even if we see a failure on the TPC. If EITHER of these signals is not low (OK) then the LD and ICP will be held in reset. The ICP shows two red LEDs on ICPST and FMTST on its faceplate at this point, and Solaria 1.3 and newer gives an error message. These signals are not directly a measure of the voltages on the LVPS. There is a circuit on the LVPS that measures the INPUT AC and output DC, driving both low (OK) if things are fine. You may notice customers reporting an (even though both have failed). The first question should be "What do the LEDs on the front plate of the ICP look like?". If they see two red LEDs, ICPST and FMTST, you've found the symptom already without interrogators or site visits. The only question is whether it's a harness or LVPS. Please make sure they're looking at the ICP faceplate, not the PIB, and not the TPC status LEDs.	

Miscellaneous			
Symptom	**Possible Causes**	**Solution**	**Notes**
Melting Snood	Off state Light dump was sometimes protruding into the off state light path and reflecting light onto the snood	New Part to be installed for the Light Dump Bracket: Part# 011-103172-02 instead of 011-03172-01 to fix the issue (BRKT Light Dump)	The fix was to rework the light dump bracket by bending the last 18mm of the bottom portion down by 45 degrees. The temperature at the 'hot spot' on the snood was monitored before and after this change and the improvement was dramatic (~50 degC instead of ~95 degC)
Very obscure lamp hours, projector hours and build date information in InterrogaTemp.txt file	The InterrogaTemp.txt file is in the root of an Interrogator .7z file. The "obscure" values seen are expected. These date/time objects are posix compliant date or Epoch based (Jan 1 1970 00:00:00:00) So BuildDate: 1263461646 -> Thu, 14 Jan 2010 09:34:06 GMT TotalProjectorHours: 1327621 -> the seconds of use it is 3687 hours TotalLampHours: 603694 -> the seconds of use it is 1677 hours for the lamp		The InterrogaTemp.txt file gives the current state of all the TPC settings when the Interrogator was run.
Fan failure	hardware issue with the -01 intake and card cage exhaust fans that were used on the CP2220 and CP2230 before June 2010 These Fans would periodically fail to spin causing an error to appear on the TPC. This Failure was eventually deemed to be a nuissance failure	Changes made by vendor	