Release Notes

D1600 HD Nano Transmitter Processing PCB

Version 1.8.1
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Change History

Version	Main Changes from Previous Version	Released By
1.1	Initial release.	RL
1.2	HDMI input (D1605 support), bug fixes and updated unit types.	RL
1.2.1	Slacken analogue video lock and updated unit types.	RL
1.3	ASI input, PA calibration and bug fixes.	RL
1.3.1	Updated unit types.	RL
1.4	Limited 3G-SDI support, text/bitmap OSD, ADL encryption, bug fixes.	RL
1.4.1	ADL license.	RL
1.6	4:2:2 support, video improvements and bug fixes.	RL
1.7	SOL7OBTX functionality, D1607 support and 3G-SDI/HDMI improvements.	RL
1.8	SOL7OBTX bi-directional camera control, D1607 chaining and bug fixes.	RL
1.8.1	SOL7OBTX front panel bug fixes, D588 upgrade package now included.	RL

Introduction

This document describes to the reader the key features, improvements, known issues and bug fixes implemented in the software for the SOLO7 (D1600 based) Transmitter range.

The document will be up issued with every software release and as such gives a traceable history in a single document.

It is DTC's intention to continue to use one version of software for all of its SOLO7 (D1600 based) Transmitter variants. Certain features will only be active where the required hardware is present in certain designs. These dependencies will be highlighted throughout.

For all current SOLO7 Transmitters it is possible to upgrade the unit with a single software file which will be named with the version number.

Upgrade procedures are covered in separate documentation available on request from solent.support@domotactical.com

Software Releases

Version 1.1

File Names

- d1600_v1.1.all (software upgrade)
- d1600_v1.1_loader.zip (boot-loader programming package)
- PL000026-02.zip (contains production code d1600_v1.1_preprog.m0)

New features

- [SOLOTTX-1] - Software upgrade

  Future software upgrades can be applied over RS232 by following an upgrade procedure or by the Cobham Device Controller application over RS232/USB.

- [SOLOTTX-22] - User configurations and presets

  Up to 16 configurations can be stored on the NTX, selected or changed using a Field Controller or the Cobham Device Controller application. The control application also provides preset Range Mode and Video Quality trade-off sliders for ease of setup.
  Requires Field Controller at v1.12+.

- [SOLOTTX-13] - USB functionality

  Allows control of the HDNTX via the PC based Cobham Device Controller application. No driver installation required.

- [SOLOTTX-25] - Feature licensing

  Associated product codes for licensing…

TX-H264	Enables DVB-T, 2.5MHz Narrowband modulation and MPEG-4 H.264 encoder (default license for a NTX unit)
TX-HDUP	Enables MPEG-4 H.264 HD encoder (requires TX-H264)
TX-UN	Enables 1.25MHz Narrowband modulation and MPEG-4 ASP encoder (required for non-H.264 capable receivers)
TX-UXN	Enables 625kHz Narrowband modulation (requires TX-UN)
TX-UMVLUP	Enables UMVL modulation
AES128TX	Enables AES 128 Bit encryption
AES256TX	Enables AES 256 Bit encryption

- [SOLOTTX-15] - Unit types

  Supported unit types in first release…

OEM	-	020030 (D1510 UHF 200-300MHz)
SOL7HDNTX		030047 (D1512 UHF 300-470MHz)
SOL7HDDCAM		100150 (D1515 L-Band 1000-1500MHz)
		165240 (D1516 L/S-Band 1650-2400MHz)
		198270 (D1517 S-Band 1980-2700MHz)
		300370 (D1520 S-Band 3000-3700MHz)
		440500 (D1523 C-Band 4400-5000MHz)
		550600 (D1525 C-Band 5500-6000MHz)

- [SOLOTTX-47] - D1600 hardware support
- [SOLOTTX-5] - DVB-T modulation

  Standard 6MHz / 7MHz / 8MHz DVB-T modulation.
- [SOLOTTX-6] - Narrowband modulation

  Domo 2.5MHz / 1.25MHz / 625kHz narrowband modulation.
- [SOLOTTX-7] - UMVL modulation

  Domo 6MHz / 7MHz / 8MHz wideband modulation.
  Requires Pro-RXB at v1.6+.
- [SOLOTTX-48] - HD-SDI input

  Support for SD/HD-SDI video input with automatic format switching.
  Embedded audio support is currently limited to 48 kHz stereo pair
  (selectable groups 1-4 but 1st pair only until second encoder is supported).

Automatic Format Detection	PAL NTSC	720p50 720p59 720p60	1080psf23 1080psf24 1080i50 1080i59 1080i60	1080p23 1080p24 1080p25 1080p29 1080p30
Manual Selection Only			1080psf25 1080psf29 1080psf30	

- [SOLOTTX-49] - HD H.264 video encoder

  Low latency High profile High Definition H.264 encoder.
  Requires Pro-RXB at v2.0+.
- [SOLOTTX-4] - SD H.264 video encoder

  Low latency High profile H.264 encoder. Improved quality at all bitrates compared to our previous MPEG-4 and MPEG-2 encoders.
  Requires Pro-RXB at v1.6.1+ or NanoVue / SOL5RX at v2.2+.

- [SOLOTTX-9] - SD ASP video encoder

  Backward compatible MPEG-4 encoder for use with SOLO4 / CRX receivers or older Pro-RX / NanoVue / SOL5RX software.

- [SOLOTTX-12] - MicroBlaze audio encoder

  Higher quality audio encoder than that found on previous TX products.

Typical RX support	MPEG-1 Layer I/II at 32/48kHz
Streaming / OEM	MPEG-1 Layer I/II/III at 32/44.1/48kHz MPEG-2 Layer III at 16/22.05/24kHz

- [SOLOTTX-19] - RS232 data channel

  Baud rates from 1200 to 115200, 7/8-bit, none/odd/even parity.

- [SOLOTTX-32] - Pattern generator

  Automated pattern generator for when no video source is connected. Configurable behaviour and pattern with or without audio tones.

- [SOLOTTX-8] - 128/256-bit encryption

  domo AES, BCrypt and CCrypt modes.

- [SOLOTTX-21] - Unit metadata

  Transfers information about the unit such as temperature and video lock status to the receiver.

Enhancements

- None.

Bug Fixes

- None.

Known Issues

- [SOLOTTX-90] - 2nd de-embedded audio channel

  Currently only supports 1st embedded pair, a second encoder will be added to support the 2nd pair as well.

- [SOLOTTX-29] - Chaining input and re-mux functionality

  Chaining input functionality yet to be implemented.

- [SOLOTTX-89] - Chaining output support on D1600

  Pin-out on expansion header needs defining.

Related documents

- [SOLOTTX-37] - SOL7NTX user guide
    - SOL7NTX Nano Transmitter User Guide R3
    - SOL7HDNTX Quick Start Guide R01
- [SOLOTTX-38] - Initial production test documents
    - D1600_Board_Level_Test_v1.0
    - SOL7HDNTX_Unit_Level_Test_v1.0
    - D16xx_OEM_Integration_v1.1

Version 1.2

File Names

- d1600_v1.2.all (software upgrade)
- PL000026-03.zip (contains production code d1600_v1.2_preprog.m0)

New features

- [SOLOTTX-51] - HDMI input (D1605 support)

  Support for SD/HD-HDMI video input with automatic format switching. Embedded audio support is currently limited to 48 kHz stereo pair (1st available pair only until second encoder is supported).

Automatic Format Detection	PAL NTSC	720p50 720p59 720p60	1080psf23 1080psf24 1080i50 1080i59 1080i60	1080p23 1080p24 1080p25 1080p29 1080p30
Manual Selection Only			1080psf25 1080psf29 1080psf30	

- [SOLOTTX-106] - 3G-SDI Level B-DS

  Support for HD-SDI formats over 3G-SDI Dual Stream video input. First payload is selected by default.
  Requires Cobham Device Controller at v2.7.1+.

- [SOLOTTX-127] - 4:0:0 encoding profile (monochrome)

  By not encoding chroma, extra bitrate is made available to improve luma resolution. This would be particularly useful for limited bitrate setups where extra clarity is preferred over colour video, or for use with low light / grey scale cameras.
  Requires Pro-RXB at v2.1+ or NanoVue / SOL5RX at v2.3+ and v3.2+.

- [SOLOTTX-94] - New 440500 unit type

  Additional supported unit types in this release…

	-	440500 (D1540 C-Band 4400-5000MHz)

Enhancements

- [SOLOTTX-107] - Encoder power reduction

  Saving of 0.1-0.2W in HD modes depending on picture content.

Bug Fixes

- [SOLOTTX-99] - Audio packets not paced correctly
- [SOLOTTX-110] - Video artifacts when using MPEG4 ASP encoder

  Issue previously seen as a sparkly effect and lines across the picture; dependant on video source and unit temperature.

Known Issues

- [SOLOTTX-90] - 2nd de-embedded audio channel
- [SOLOTTX-29] - Chaining input and re-mux functionality
- [SOLOTTX-89] - Chaining output support on D1600

Related documents

- [SOLOTTX-38] - Latest production test documents
  - D1600_Board_Level_Test_v1.1
  - D1605_Board_Level_Test_v1.0
  - SOL7HDNTX_Unit_Level_Test_v1.1
  - D16xx_OEM_Integration_v1.2

Version 1.2.1

File Names

- d1600_v1.2.1.all (software upgrade)
- PL000026-04.zip (contains production code d1600_v1.2.1_preprog.m0)

New features

- [SOLOTTX-103] - 640700 unit type
- [SOLOTTX-159] - 700750 unit type
- [SOLOTTX-102] - 810890 unit type

  Additional supported unit types in this release…

	-	640700 (D1527 C-Band 6400-7000MHz)
		700750 (D1528 C-Band 7000-7500MHz)
		810890 (D1530 X-Band 8100-8900MHz)

Enhancements

- None.

Bug Fixes

- [SOLOTTX-146] - No video lock when composite/s-video is missing colour information

  Removed requirement for colour lock in Composite and S-Video modes. S-Video is recommended for a monochrome camera as the Composite modes would have detrimental filtering.

Known Issues

- [SOLOTTX-90] - 2nd de-embedded audio channel
- [SOLOTTX-29] - Chaining input and re-mux functionality
- [SOLOTTX-89] - Chaining output support on D1600
- [SOLOTTX-151] - Frequency occasionally modified on power up
- [SOLOTTX-160] - HDMI lost after TX power cycle with Replay XD camera
- [SOLOTTX-161] - 1kHz test tone distorted and not quite 1kHz

Related documents

- [SOLOTTX-38] - Latest production test documents
  - D15xx_Board_Level_Test_v1.5
  - D1600_Board_Level_Test_v1.2
  - D1605_Board_Level_Test_v1.1

- SOL7HDNTX_Unit_Level_Test_v1.2

Version 1.3

File Names

- d1600_v1.3.all (software upgrade)
- PL000026-05.zip (contains production code d1600_v1.3_preprog.m0)

New features

- [SOLOTTX-29] - Chaining input and re-mux functionality

  Setting chaining input to On allows for an external transport stream to be combined with the local service and transmitted over a single RF channel. Care must be taken with bitrate allocation, and transport program number and PIDs. For more information refer to the user manual.

  Setting the chaining input to Relay disables all local services and allows transmission of the external transport stream over RF.

- [SOLOTTX-141] - D1600 ASI input (reuse SDI input)

  SDI input can be reused as an ASI input for chaining/re-mux purposes. This allows the SOL7HDNTX to be used as a ASI re-broadcast transmitter.

- [SOLOTTX-166] - 1/4 horizontal resolution HD down-sampling

  Allows HD video source to be used at lower bandwidths if required. Improvements have also been made to the 1/2 horizontal resolution HD down-sampling filter.

- [SOLOTTX-153] - Add optional PA calibration step

  An external PA can now be paired/calibrated with the NTX to provide consistent power output across the frequency band. External PA offsets and then be enable/disabled using the additional PA option.
  For calibration procedure refer to the OEM integration document.

Enhancements

- [SOLOTTX-131] - Extend preset output range from 100mW to 2W

  New option available to select the presence of an external PA. If the PA has been calibrated this will enable offsets to provide consistent power output across the frequency band. It will also extend the range of the preset power output list for simplified power output selection.
  PA selection option to be added to the Cobham Device Controller, alternatively see the OEM integration document.

Bug Fixes

- [SOLOTTX-151] - Frequency occasionally modified on power up

  Resolved an issue with some units where frequency could change to the bottom of frequency band after power cycle.

- [SOLOTTX-154] - PTS interval can exceed ETR 290 specification

  PTS interval was exceeding ETR 290 specification of 500ms when in standard delay mode.

- [SOLOTTX-161] - 1kHz test tone distorted and not quite 1kHz

- [SOLOTTX-162] - Occasional issue with AES256 key updates

  Whilst applying 256-bit keys the control application could hang, although keys would be applied successfully.
  Resolved in Cobham Device Controller at v2.8.18+.

- [SOLOTTX-167] - 640700 / 700750 / 810860 have spectrum inverted

  Incorrectly required spectrum inversion at receiver to get demodulator lock.

- [SOLOTTX-160] - HDMI lost after TX power cycle with Replay XD camera

  Improved reliability of hot plug detect and EDID setup on boot when certain cameras are already connected.

- [SOLOTTX-168] - MPEG Layer III high bitrate interruptions

  320kbps at 44.1kHz sample rate or 320/384kbps at 48kHz sample rate had occasional interruptions due to encoder overrun.

- [SOLOTTX-169] - MPEG Layer II bitrates not limited correctly

  Bitrates greater than 192kbps in single mono modes are not supported. Combination of 384kbps at 32kHz sample rate is not supported.

- [SOLOTTX-170] - Unnecessary delay added to MPEG audio encoder

  Resulted in minimum audio end-to-end delay being longer than necessary.

Known Issues

- [SOLOTTX-90] - 2nd de-embedded audio channel

- [SOLOTTX-89] - Chaining output support on D1600

Related documents

- [SOLOTTX-38] - Latest production test documents
  - SOL7HDNTX_Unit_Level_Test_v1.3
  - D16xx_OEM_Integration_v1.3

Version 1.3.1

File Names

- d1600_v1.3.1.all (software upgrade)
- PL000026-06.zip (contains production code d1600_v1.3.1_preprog.m0)

New features

- None.

Enhancements

- None.

Bug Fixes

- [SOLOTTX-193] - PA bias slightly low for D1515

  Causing poor SNRs in Low Power 10/100mW modes with latest batch.

  Follow the Unit Type section of SOL7HDNTX_Unit_Level_Test_v1.3 to update the D1515 PA bias then complete RF Calibration.

Known Issues

- [SOLOTTX-90] - 2nd de-embedded audio channel
- [SOLOTTX-89] - Chaining output support on D1600

Related documents

- None.

Version 1.4

File Names

- d1600_v1.4.all (software upgrade)
- PL000026-07.zip (contains production code d1600_v1.4_preprog.m0)

New features

- [SOLOTTX-184] - Time/date OSD

  Time/date can be set by external source via remote commands and will free run with reference to the video source. Overlay can be enabled in multiple positions and scales based on resolution to maintain readability.

  Sprite like overlay also available for custom applications.

- [SOLOTTX-199] - ADL encryption

  ADL 256 encryption mode meets interoperability requirements. Currently requires "session key" information to be provided by outside control and the unit must be set to ADL application type.

- [SOLOTTX-200] - ADL application type

  New application type added for behaviour specific to Airborne Data Link Interoperability Specification. This includes data packet format, video loss overlay, and encoder constraints.

Enhancements

- None.

Bug Fixes

- [SOLOTTX-176] - Audio streams missing PES packet length

  Had potential for causing interoperability issues with 3rd party decoders.

- [SOLOTTX-189] - Occasional lock-up of HD encoder

  Some units exhibited behaviour where the HD encoder would lock-up after a random period of time. The result would be highly quantised video until the unit was reset.

- [SOLOTTX-193] - PA bias slightly low for D1515 (re-opened)

  Causing poor SNRs in Low Power 10/100mW modes with latest batch.

  Follow the Unit Type section of SOL7HDNTX_Unit_Level_Test_v1.3 to update the D1515 PA bias then complete RF Calibration.

Beta Features

- [SOLOTTX-104] - 3G-SDI Level A

- [SOLOTTX-105] - 3G-SDI Level B-DL

  Initial support for 3G-SDI inputs either as Level A or Level B Dual-Link. Encoder support is still in development and currently limited to sub-resolution depending on frame rate.

	Level A	Level B-DL	Encoder Limitation
Automatic Format Detection	1080p50	1080dl50	1280x1080p50
	1080p59 1080p60	1080dl59 1080dl60	960x1080p59 960x1080p60

Known Issues

- [SOLOTTX-90] - 2nd de-embedded audio channel
- [SOLOTTX-89] - Chaining output support on D1600

Related documents

- [SOLOTTX-38] - Latest production test documents
  - D16xx_OEM_Integration_v1.4

Version 1.4.1

File Names

- d1600_v1.4.1.all (software upgrade)
- PL000026-08.zip (contains production code d1600_v1.4.1_preprog.m0)

New features

- None.

Enhancements

- None.

Bug Fixes

- [SOLOTTX-201] - ADL License

  ADL license code was missing from previous release.
  ADL256 encryption can now be enabled by adding licence code **Q**.
  Requires purchase of ADL256TX.

Known Issues

- [SOLOTTX-90] - 2nd de-embedded audio channel
- [SOLOTTX-89] - Chaining output support on D1600
- [SOLOTTX-104] - 3G-SDI Level A
- [SOLOTTX-105] - 3G-SDI Level B-DL

  3G-SDI support still in open beta.

Related documents

- [SOLOTTX-38] - Latest production test documents
  - D15xx_Board_Level_Test_v1.6
  - SOL7HDNTX_Unit_Level_Test_v1.4
  - D16xx_OEM_Integration_v1.4.1

Version 1.6

File Names

- d1600_v1.6.all (software upgrade)
- PL000026-09.zip (contains production code d1600_v1.6_preprog.m0)

New features

- [SOLOTTX-126] - 4:2:2 encoding profile

  Support for High Profile H.264 encoder with 4:2:2 Chroma sampling. This doubles the Chroma resolution compared to 4:2:0 encoding modes, and subsequently requires a little more bitrate. The largest improvement will be seen with interlaced video formats.
  Requires Cobham Device Controller at v2.11.1+.
  Requires purchase of TX-422 license.
  Requires Pro-RXD or NanoVueHD with RX-422 license.

- [SOLOTTX-227] - 045060 unit type

  Additional supported unit types in this release...

	-	045060 (D1513 UHF 450-600MHz)

Enhancements

- [SOLOTTX-123] - 1/4 vertical resolution HD down-sampling

  HD video sources previously limited to 1/2 vertical resolution.

- [SOLOTTX-206] - De-blocking filter optimisation

  Improved implementation saving approximately 0.2W consumption.

- [SOLOTTX-222] - Extend filter data on horizontal down-sampling

  Picture edges are no longer soft with down-sampled digital inputs.

- [SOLOTTX-231] - H.264 decision improvements

  Improved motion search bias giving better motion vector consistency. Refined block level decision making showing most benefit at low bitrates.

- [SOLOTTX-244] - Increase number of IQ calibration points

  Roughly doubled the number of calibration points for all unit types (every 10-20MHz for UHF and 50MHz elsewhere). This will improve performance with DVB-T 16-QAM or 64-QAM at frequencies between calibration points.

  This change will only take affect if the unit type is re-set. After re-setting the unit type, RF calibration must be performed again (see Unit Level Test documentation for details).

Bug Fixes

- [SOLOTTX-203] - NIT network name descriptor error

  MPEG transport stream NIT packet was missing descriptor causing issues with decoders or analysers relying on NIT for correct operation.

- [SOLOTTX-207] - Xilinx AR# 61295

- [SOLOTTX-220] - Pixel misalignment in 1080p formats

  Resulted in single black line of pixels at top of picture, bottom line missing.

- [SOLOTTX-224] - Audio PTS too early when video disabled

  Caused audio decoders to misbehave and stutter as the audio PTS was not correctly calculated.

- [SOLOTTX-228] - Low mux rate audio late and/or missing packets

  Acceptable audio bitrates could not be used reliably in narrowband modes where audio bitrate was taking over 50% of the total modulation bitrate.

- [SOLOTTX-229] - Wrong number of audio GLITs with NTSC test pattern

  Left and right channel test tone with NTSC video format contained 3 and 4 GLITs, rather than 1 and 2 as intended.

- [SOLOTTX-232] - Picture tear at top of QSIF video

  With 1/4 resolution horizontal and vertical down-sampling selected a picture tear has been present with the H.264 encoder since v1.3.

Known Issues

- [SOLOTTX-90] - 2nd de-embedded audio channel

- [SOLOTTX-89] - Chaining output support on D1600

- [SOLOTTX-104] - 3G-SDI Level A

- [SOLOTTX-105] - 3G-SDI Level B-DL

  3G-SDI support still in open beta.

- [SOLOTTX-268] - PCR issues with SD test pattern

  Some PCR accuracy issues have been observed on specific hardware. This only affects the SD H.264 encoder with test pattern, and could result in stuttering video/audio. External video sources or other encoder modes are not affected.

Related documents

- [SOLOTTX-38] - Latest production test documents

- SOL7HDNTX_Unit_Level_Test_v1.5
- D16xx_OEM_Integration_v1.6

Version 1.7

File Names

- d1600_v1.7.all (software upgrade)
- PL000026-10.zip (contains production code d1600_v1.7_preprog.m0)

Compatibility

- Domo Device Controller v2.11.8+ and/or D588 v1.18+ required for control of some new features, previous versions will still function.

New features

- [SOLOTTX-90] - 2nd de-embedded audio channel

  2nd audio encoder available using same settings as 1st audio encoder (with the exception of Source and PID). Extra option for selecting Embedded channel 2 for SDI input only.
  Requires Domo Device Controller at v2.11.8+.

  For identification purposes encoder 1 and encoder 2 have different number of GLITs in their test pattern 1kHz tone. One (left) and two (right) GLITs on encoder 1, then three (left) and four (right) GLITs on encoder 2.

- [SOLOTTX-104] - 3G-SDI Level A
- [SOLOTTX-105] - 3G-SDI Level B-DL

  Released support for 3G-SDI inputs either as Level A or Level B Dual-Link. Encoder support is still in development and currently limited to sub-resolution depending on frame rate.

  Requires D1600 issue 3.1+.
  Older revision PCBs are not compatible and although auto-detect will work, they will show a test pattern with "NOT SUPPORTED" overlay.

	Level A	Level B-DL	Encoder Limitation
Automatic Format Detection	1080p50	1080dl50	1280x1080p50
	1080p59 1080p60	1080dl59 1080dl60	960x1080p59 960x1080p60

- [SOLOTTX-208] - SOL7OBTX functionality

  HDMI input on SOL7OBTX / D1607 supports 1080p50/59/60 inputs with the same encoder limitations which apply to 3G-SDI.

  Balanced audio input on SOL7OBTX / D1607 supports full scale range of +18dBu with switchable 0/12/48V microphone power.

  The SOL7OBTX / D1607 contains on-board battery voltage monitoring which is transmitted in metadata and displayed on compatible receivers.

The SOL7OBTX contains one ASI Input and ASI Output. The D1607 has two of each which can be prioritised/selected via remote commands. Currently only a single ASI/chaining input can be used for remux, and inputs will auto-swap based on enable/lock status of inputs.

Optional CCCAM upgrade is available as a replacement for standalone camera control RX. CCCAM control has been integrated into the SOL7OBTX front panel and the Domo Device Controller.
Requires Domo Device Controller at v2.11.8+.

The SOL7OBTX RF module / D1509 contains a dual colour LED. The LED will light up green when RF is enabled, and flash red if a video/audio input being used is not locked or if ASI remux input is overflowing.

Improved defaults settings for SOL7OBTX license structure and features.
- Default to NB/UMVL if not licensed for DVB-T.
- Default to UMVL 8MHz if not licensed for NB 2.5MHz.
- Default to SD format if not licensed for HD encoder.
- Default to RF Off for SOL7OBTX as per SOLH264ENGTX behaviour.

- [SOLOTTX-280] - Restricted frequency range control

  Additional remote commands to define a restricted frequency band where user selection is not allowed. Restriction is stored on RF card so will be lost on base type set/upgrade, but not after Restore Defaults.

- [SOLOTTX-282] - D1600+D1607 without RF card

  D1600+D1607 pair can be run without the need for a D15xx RF card. This would be useful for ASI/chaining based applications where a modulator is not required.

Enhancements

- [SOLOTTX-267] - Replace 4:2:0/HD encoder with 4:2:2/HD version

  Faster switching between 4:2:0 and 4:2:2 modes and slightly lower power 4:2:2 profile with formats outside of 3G-SDI.

- [SOLOTTX-286] - Separate USB/RS-232 control

  SOLO7 units or PCBs can now be controlled via USB and RS-232 simultaneously. This allows for front panel control (FCON for example) at the same time as USB control via Device Controller.

Bug Fixes

- [SOLOTTX-268] - PCR issues with SD test pattern

  Timing issue causing PCR accuracy issues on specific hardware. This only affected the SD H.264 encoder with test pattern, and could result in stuttering video/audio. External video sources or other encoder modes where not affected.

- [SOLOTTX-279] - HDMI receiver setup missing recommended settings

  Improves reliability/compatibility of HDMI with a variety of sources.

- [SOLOTTX-293] - Left mono audio takes Right channel from embedded

  Fixed routing as well as test pattern audio GLITs on Left mono mode.

- [SOLOTTX-294] - False auto-format detect with no SDI source

  Would occasionally switch away from boot or last detected format to SD-SDI format if left with no SDI source connected.

Known Issues

- [SOLOTTX-292] - Bi-directional camera control support

  Uni-directional camera control support only for initial OBTX CCCAM release. Bi-directional support to follow in v1.8.

- [SOLOTTX-296] - Downgrading of software causes future upgrade issues

  Avoid downgrading software on units where at all possible.

  If a unit is downgraded, it may be necessary to revert to the software downgraded from, before continuing with future upgrades. Symptoms could include failed upgrade via Device Controller, or fwrite error shown whilst upgrading over RS-232.

  Alternative solution is to upgrade via the bootloader.

Related documents

- [SOLOTTX-38] - Latest production test documents
  - D1607_Board_Level_Test_v1.0
  - SOL7OBTX_RF_Module_Test_v1.0
  - SOL7OBTX_Unit_Level_Test_v1.0
  - D16xx_OEM_Integration_v1.7

Version 1.8

File Names

- d1600_v1.8.all (software upgrade)
- PL000026-11.zip (contains production code d1600_v1.8_preprog.m0)

Compatibility

- No change.

New features

- [SOLOTTX-292] - Bi-directional camera control support

  On SOL7OBTX the data channel is now used to support bi-directional camera control data from the CCCAM upgrade. Data will appear at the output of a compatible receiver at 9600 baud (8-bit no parity). *This is setup automatically as long as the standard Data input is not selected. If Data input is enabled the data channel is then used for RS-232 input instead.*

- [SOLOTTX-149] - Chaining output support with D1600+D1607

  OEM only, domo standard interface for transferring transport stream data from unit to unit. 1.8V or 3.3V switchable via remote command.

Enhancements

- [SOLOTTX-308] - RS-232 device interface self-test for D1607

  Loopback test for D1607 board level test procedure.

Bug Fixes

- [SOLOTTX-296] - Downgrading of software causes future upgrade issues

  Avoid downgrading software on units where at all possible to software older than v1.8. Future versions of software can be safely downgraded to v1.8 or newer without issue.

  If a unit is downgraded past v1.8, it may be necessary to revert to the software downgraded from, before continuing with future upgrades. Symptoms could include failed upgrade via Device Controller, or fwrite error shown whilst upgrading over RS-232.

  Alternative solution is to upgrade via the bootloader.

- [SOLOTTX-309] - Colourful artifacts on 4:2:2 in sub-vertical resolution

  Issues seen with 1/2 or 1/4 vertical resolution and 4:2:2 only.

- [SOLOTTX-314] - HDMI EDID not advertising 1080p50/60 with D1607

  HDMI EDID has been updated to advertise 1080p50 and 1080p60 when D1607 is being used with Automatic video source selected. This means set top box type devices will now default or allow the option of 1080p50/60.

  If a video format is manually selected this will now be the only format advertised in the EDID video data block. *This does not guarantee the HDMI source will match the format, behaviour is device dependant.*

- [SOLOTTX-316] - No HD test pattern on some PCBs

  Some PCBs exhibited behaviour where HD test pattern was unreliable. This did not affect actual video inputs or SD test pattern.

- [SOLOTTX-324] - Microphone gain clipping

  Gain value was being clipped badly, now clips correctly at 63dB.

- [SOLOTTX-305] - Poor RF performance on SA3090 (D1525)

  Bring software and unit type defaults in-line with bias improvements already being done manually during calibration.

Known Issues

- None.

Related documents

- [SOLOTTX-38] - Latest production test documents
  - D1607_Board_Level_Test_v1.2
  - SOL7OBTX_Unit_Level_Test_v1.1
  - D16xx_OEM_Integration_v1.8

Version 1.8.1

File Names

- d1600_v1.8.1.all (software upgrade)
- d1600_v1.8.1_obtx.zip (SOL7OBTX package including D588_v1_18.all)
- PL000026-12.zip (contains production code d1600_v1.8.1_preprog.m0)

Compatibility

- No change.

New features

- None.

Enhancements

- None.

Bug Fixes

- [SOLOTTX-352] - Device Controller and Front Panel can hang SOL7OBTX with camera control fitted

  Communications with D1600 whilst changing mode (between ASP, SD, HD or 4:2:2 encoder) could cause D1600 to hang for about 1 minute. This would result in the Device Controller hanging or Front Panel showing "Unit Not Known".

- [FCON-84] - Reply error on SOL7OBTX Front Panel DVB-T menu

  Latest DVB-T menu included a command not yet supported on the D1600 software. To reduce issues with compatibility of D1600 software and D588 software/menus a SOL7OBTX upgrade package will now be included along with D1600 releases. This will include:

  - Latest compatible D588 software
  - Menu set compatible with D1600 software

  Updated SOL7OBTX Unit Level test document covers use of the new package rather than latest D588 release.

Known Issues

- None.

Related documents

- [SOLOTTX-38] - Latest production test documents
  - SOL7OBTX_Unit_Level_Test_v1.4
  - D16xx_OEM_Integration_v1.9