



NV8500 v3.7.1 Release Notes

Overview

ECO 19393 releases NV8500 router applications and firmware that update control cards and IOXM¹ cards. The version assigned to this release is 3.7.1 and its build number is 3242.

This release addresses the following major issues:

Major Changes

- [NV8500-1449] NV8500 hybrid TDM output needs to support DVB-ASI.
- [NV8500-1429] Audio pops when doing a video-only switch.
- [NV8500-1314] Embedded Dolby E occasionally leaves router delayed by 8-15 lines.

Bugs Fixed

- [NV8500-1672] Under pass-through shuffle, only the bottom 4 pass-through sources work on stereo level.
- [NV8500-1643] CRC errors when switching from PAL to NTSC format.
- [NV8500-1621] NV8500 hybrid V3.6.0 stunted stereo routes in NP0016 as mono routes.
- [NV8500-1577] Incorrect audio channel may be embedded in output video, when an audio take is made from a standard input card to an ABI output card, without using an assigned pass-through source number.
- [NV8500-1489] On router power up, an output card could “draw down” the IOXM bus, if it did not boot properly.
- [NV8500-1446] Si5324 Part Taking 15–20 seconds to lock because of component change.
- [NV8500-1442] EM0903-00 card did not boot properly.

Known Issues

- [NV8500-1726] ‘Get changes’ not reporting change from pass-through shuffle source, or pass-through source, to regular embedded audio source.
- [NV8500-1727] NV8576 expansion system reporting EM0896 crosspoint as EM0662.

MRC Changes

- [NV8500-778] Added a ‘hybrid diagnostic’ view to MRC’s ‘Crosspoint’ page. This shows video outputs and their 16 audio inputs.
- [NV8500-1358] Crosspoints page tool tip changed for stereo audio level.

1. IOXM is shorthand for Input, Output, Xpt, Monitor and essentially means any NV8500 card that can be read by a control card, in other words any card but a control card. However, the term IOXM does not (yet) apply to standard NV8500 cards.

Requirements

The upgrade has certain requirements.

- A PC running MRC (version 3.7.1 or later). This version of MRC has been used for all testing.
- One or two EM0833 control cards for each router frame you intend to upgrade. (These cards are probably already in use at the site.)
- A boot ROM (IC), with SV1038-05A code, only for EM0833-20 control cards.
- All the firmware files available (on a memory stick or other suitable medium).
NV8500_HYB_FW_3.7.1.3242.RF This is SV1052-53 (A1) of EM0833 firmware.

Firmware Notes

The following notes list the changes and bug fixes.

SV0984-1403

File Names

SV0984-1403.bit, SV0984-1403.mcs

MRC Reports Version: SV0984-14, 14.0.0.3

Supported Assemblies

EM0814-10

Key Features, Additions, or Changes for this Release

- [NV8500-1442] Because there is no external pull-up resistor on the FPGA ‘Done’ pin, the configuration was changed to drive the ‘Done’ pin high upon completion of the configuration. This resolved the problem of hybrid input cards not configuring sometimes.
- Added flywheel so that if there is a switch on the input video, there is a clean transition on the audio.

Known Issues

- This code has not been modified to support the newer version of the SiLabs 5324.
- SV1015-14 fixed an issue where sometimes modules would not boot (< 1%). For this fix to take effect, the golden code space must have been programmed using JTAG with SV1015-14 or later.

SV1036-2118 and SV1037-2118

See Special Note under “Supported Assemblies” for pre-EM0815-20 assemblies.

File Names

SV1036-2118.bit,mcs

Supported Assemblies

- EM0815-10, EM0815-11, EM0815-12

NV8500 v3.7.1 Release Notes

If these assemblies are using SV1036-15 and SV1037-15 or earlier, then they must be JTAG programmed because of power supply noise issues preventing proper programming via control card. Subsequent versions can be programmed via control card if version -16 or later has already been loaded.

- EM0815-20

Key Features, Additions, or Changes for this Release

- [NV8500-1449] Support for DVB ASI.
- [NV8500-1314] Dolby-E Fix
- [NV8500-1728, NV8500-1429] Flywheel.
- [NV8500-1446] Si-Labs support for new part.
- [NV8500-1643] CRC error when switching to NTSC format. Was less than 10 seconds with Embedder code.

SV1037-2118

File Names

SV1037-2118.bit,mcs

Refer to SV1036 for performance and errata information.

SV1052-53 Rev A

NV85000 hybrid firmware

This is NV8500_HYB_FW_3.7.1.3242.RF - EM0833 Firmware - February, 2015; Version: 3.7.1.3242

Length	Date	Time	DevType	NamePart#	Version
-----	----	----	-----	-----	-----
53641	01/27/15	3:58pm	BOOT	BIN/BOOT	SV0000-00A EM0833BootJan 19 2015 10:25:19
843516	01/27/15	3:58pm	APP0	BIN/APP0	SV0000-00A EM0833AppJan 19 2015 10:24:56
2969683	11/14/14	2:11pm	PLD0	PLD/PLD0	SV1033-15A EM0833PLD 8500 Frames, REL 12/19/13
3072085	11/14/14	2:11pm	PLD1	PLD/PLD1	SV1072-17A EM0833PLD 8500 Frames, REL 10/10/14
0	11/14/14	2:13pm	CPLD	SV105500A	SV1055-00A
0	11/14/14	2:13pm	CPLD1	SV105501	SV1055-01A
171733	01/27/15	3:58pm	MTRX0	BIN/MTRX0	SV0000-00A EM0833Mtrx8144Jan 19 201510:25:35
169042	01/27/15	3:58pm	MTRX1	BIN/MTRX1	SV0000-00A EM0833Mtrx8280Jan 19 201510:25:41
169766	01/27/15	3:58pm	MTRX3	BIN/MTRX3	SV0000-00A EM0833Mtrx8576Jan 19 201510:25:47
169896	01/27/15	3:58pm	MTRX4	BIN/MTRX4	SV0000-00A EM0833Mtrx8576PlusJan 19 201510:25:54
167846	01/27/15	3:58pm	MTRX5	BIN/MTRX5	SV0000-00A EM0833Mtrx8140Jan 19 201510:25:29
27753	01/27/15	3:58pm	PROT0	BIN/PROT0	SV0000-00A EM0833ProtBTSJan 19 201510:26:24
16957	01/27/15	3:58pm	PROT2	BIN/PROT2	SV0000-00A EM0833ProtProbelJan 19 201510:26:37

NV8500 v3.7.1 Release Notes

22263	01/27/15	3:58pm	PROT5	BIN/PROT5	SV0000-00A EM0833ProtLeitchJan 19 201510:26:27
2330566	01/27/15	3:58pm	OS	BIN/OS	SV0000-00A EM0833OSJan 19 2015 10:26:04
4010928	11/14/14	2:12pm	IOXM0	SV0984-1403	EM0814, SV0984-14, Build: 3, "NV8500 3Gig SDI DEM 8 COAX IN"
5103005	11/14/14	2:11pm	IOXM1	SV0985-0600	EM0817, SV0985-06, Build: 0, "NV8500 288x288 3Gig XPT HYBRID"
7809308	01/27/15	3:58pm	IOXM2	MRC_SV1036-2118	EM0815, SV1036-21, Build: 18, "NV8500 3Gig SDI EMB 16 COAX OUT"
7779324	02/04/15	3:22pm	IOXM3	MRC_SV1056-2001	EM0815, SV1056-20, Build: 1, "NV8500 3Gig COAX 16 SDI / 2 TDM OUT"
4010928	11/14/14	2:11pm	IOXM4	SV1015-1403	EM0814, SV1015-14, Build: 3, "NV8500 3Gig COAX 8 SDI / 1 TDM IN"
4529126	11/14/14	2:11pm	IOXM5	SV1004-0700	EM0819, SV1004-07, Build: 0, "NV8500 144x144 3Gig XPT HYBRID"
232020	11/14/14	2:11pm	IOXM6	SV0825-1400	EM0785, SV0825-14, Build: 0, "NV8500 3Gig SDI 18 COAX OUT"
235176	11/14/14	2:11pm	IOXM7	SV0824-1401_EM0783	EM0783, SV0824-14, Build: 1, "NV8500 3Gig SDI 9 COAX IN"
235840	11/14/14	2:13pm	IOXM8	SV0854-1301	EM0662, SV0854-13, Build: 1, "NV8500 288x288 3Gig XPT STD"
235860	11/14/14	2:12pm	IOXM9	SV0975-1100	EM0678, SV0975-11, Build: 0, "NV8500 144x144 3Gig RED XPT STD"
210600	11/14/14	2:11pm	IOXM10	SV0917-2200_EM0799	EM0799, SV0917-22, Build: 0, "NV8500 144x144 3Gig XPT STD"
210600	11/14/14	2:11pm	IOXM11	SV0917-2200_EM0894	EM0894, SV0917-22, Build: 0, "NV8500 144x144 3Gig XPT STD"
210600	11/14/14	2:11pm	IOXM12	SV0917-2200_EM0895	EM0895, SV0917-22, Build: 0, "NV8140 144x144 3Gig RED XPT STD"
229372	11/14/14	2:13pm	IOXM13	SV0935-1100	EM0676, SV0935-11, Build: 0, "NV8500 288x288 3Gig RED XPT STD"
236232	11/14/14	2:12pm	IOXM14	SV0960-1400_EM0783	EM0783, SV0960-14, Build: 0, "NV8144 3Gig SDI 9 COAX IN"
235840	11/14/14	2:11pm	IOXM15	SV1108-1101	EM0785, SV1108-11, Build: 1, "NV8500 HD SDI 18 COAX OUT"
231608	11/14/14	2:11pm	IOXM16	SV1110-1400_EM0783	EM0783, SV1110-14, Build: 0, "NV8500 HD SDI 9 COAX IN"
235840	11/14/14	2:12pm	IOXM17	SV1109-1000	EM0785, SV1109-10, Build: 0, "NV8144 HD SDI 18 COAX OUT"
207212	11/14/14	2:13pm	IOXM18	SV1111-1000	EM0783, SV1111-10, Build: 0, "NV8144 HD SDI 9 COAX IN"
235840	11/14/14	2:11pm	IOXM19	SV0961-1000	EM0785, SV0961-10, Build: 0, "NV8144 3Gig SDI 18 COAX OUT"
235840	11/14/14	2:12pm	IOXM20	SV0826-1200	EM0787, SV0826-12, Build: 0, "NV8500 3Gig SDI 9 COAX OUT+EXP"
235840	11/14/14	2:13pm	IOXM21	SV1112-1000	EM0787, SV1112-10, Build: 0, "NV8500 HD SDI 9 COAX OUT+EXP"
235840	11/14/14	2:12pm	IOXM22	SV0977-1200	EM0697, SV0977-12, Build: 0, "NV8500 3Gig SDI 18 FIBER OUT"
235840	11/14/14	2:11pm	IOXM23	SV1113-1000	EM0692, SV1113-10, Build: 0, "NV8500 3Gig SDI EXP FILLER OUT"
341600	11/14/14	2:12pm	IOXM24	SV0939-1100	EM0688, SV0939-11, Build: 0, "NV8500 AES ASYNC 18 OUT"

NV8500 v3.7.1 Release Notes

235840	11/14/14	2:13pm	IOXM25	SV0978-1000	EM0695, SV0978-10, Build: 0, "NV8500 3Gig SDI 9 FIBER OUT+EXP"
235840	11/14/14	2:11pm	IOXM26	SV0976-1000	EM0693, SV0976-10, Build: 0, "NV8500 3Gig SDI 9 FIBER IN"
341600	11/14/14	2:12pm	IOXM27	SV0938-1200	EM0687, SV0938-12, Build: 0, "NV8500 AES ASYNC 9 IN"
235840	11/14/14	2:12pm	IOXM28	SV0872-1200	EM0663, SV0872-12, Build: 0, "NV8500 3Gig SDI 2 Monitor"
3968228	11/14/14	2:11pm	IOXM29	SV1088-0015	EM0869, SV1088-00, Build: 15, "NV8500 3Gig XR SDI DEM 8 COAX IN"
3240140	11/14/14	2:13pm	IOXM30	SV1089-0001	EM0869, SV1089-00, Build: 1, "NV8500 3Gig XR COAX 8 SDI / 1 TDM IN"
6854156	02/10/15	10:13am	IOXM31	SV1082-0902	EM0816, SV1082-09, Build: 2, "NV8500 3Gig SDI EMB 8 COAX OUT+EXP"
6823660	02/10/15	10:12am	IOXM32	SV1083-0902	EM0816, SV1083-09, Build: 2, "NV8500 3Gig COAX 8 SDI / 1 TDM OUT+EXP"
3935832	02/10/15	10:12am	IOXM33	SV1095-0902	EM0816, SV1095-09, Build: 2, "NV8500 3Gig HYBRID OUT+EXP FILLER"
5347409	11/14/14	2:13pm	IOXM34	MRC_SV1092-0100	EM0818, SV1092-01, Build: 0, "NV8500 288x288 3Gig RED XPT HYBRID"
423490	11/14/14	2:11pm	IOXM35	SV1094-0200	EM0818, SV1094-02, Build: 0, "NV8500 288x288 3Gig RED XPT HYBRID"
4527051	11/14/14	2:11pm	IOXM36	SV1114-0301	EM0820, SV1114-03, Build: 1, "NV8500 144x144 3Gig RED XPT HYBRID"
227820	11/14/14	2:13pm	IOXM37	SV1115-0302	EM0820, SV1115-03, Build: 2, "NV8500 144x144 3Gig RED XPT HYBRID"
235840	11/14/14	2:11pm	IOXM38	SV1138-0101	EM0887, SV1138-01, Build: 1, "NV8140 3Gig SDI 18 COAX IN"
4566094	11/14/14	2:13pm	IOXM39	SV1164-0200_EM0899	EM0899, SV1164-02, Build: 0, "NV8500 144x144 3Gig XPT HYBRID"
4566094	11/14/14	2:13pm	IOXM40	SV1164-0200_EM0900	EM0900, SV1164-02, Build: 0, "NV8140 144x144 3Gig RED XPT HYBRID"
4010928	11/14/14	2:11pm	IOXM41	SV1162-0503	EM0898, SV1162-05, Build: 3, "NV8140 3Gig SDI DEM 18 COAX IN"
4010928	11/14/14	2:13pm	IOXM42	SV1163-0503	EM0898, SV1163-05, Build: 3, "NV8140 3Gig COAX 16 SDI / 2 TDM IN"
235840	11/14/14	2:11pm	IOXM43	SV1159-0100	EM0887, SV1159-01, Build: 0, "NV8140 HD SDI 18 COAX IN"
235840	11/14/14	2:11pm	IOXM44	SV1169-0100	EM0892, SV1169-01, Build: 0, "NV8140 3Gig SDI 18 FIBER IN"
235840	11/14/14	2:13pm	IOXM45	SV1149-0200	EM0896, SV1149-02, Build: 0, "NV8500 288x288 3Gig XPT STD"
13751932	02/04/15	3:23pm	IOXM46	MRC_SV1126-2000	EM0878, SV1126-20, Build: 0, "NV8500 3Gig SDI DEM/EMB 16 COAX OUT"
235176	11/14/14	2:11pm	IOXM47	SV0824-1401_EM0902	EM0902, SV0824-14, Build: 1, "NV8500 3Gig SDI 9 COAX IN"

NV8500 v3.7.1 Release Notes

236232	11/14/14	2:12pm	IOXM48	SV0960-1400_EM0902	EM0902, SV0960-14, Build: 0, "NV8144 3Gig SDI 9 COAX IN"
231608	11/14/14	2:11pm	IOXM49	SV1110-1400_EM0902	EM0902, SV1110-14, Build: 0, "NV8500 HD SDI 9 COAX IN"
4010928	11/14/14	2:12pm	IOXM50	SV1172-0503	EM0903, SV1172-05, Build: 3, "NV8500 3Gig SDI DEM 8 COAX IN"
4010928	11/14/14	2:12pm	IOXM51	SV1173-0503	EM0903, SV1173-05, Build: 3, "NV8500 3Gig COAX 8 SDI / 1 TDM IN"
6888464	02/10/15	10:13am	IOXM52	SV1174-0902	EM0816, SV1174-09, Build: 2, "NV8500 3Gig SDI DEM/EMB 8 COAX OUT+EXP"
11128836	11/14/14	2:11pm	IOXM53	SV1123-0702	EM0886, SV1123-07, Build: 2, "NV8500 3Gig SDI FRAMESYNC 8 COAX IN"
391240	11/14/14	2:12pm	IOXM54	SV1189-0100	EM0919, SV1189-01, Build: 0, "NV8500 288x288 3Gig RED XPT STD"
424079	11/14/14	2:11pm	IOXM55	SV1190-0100	EM0919, SV1190-01, Build: 0, "NV8500 288x288 3Gig RED XPT STD"
4250631	11/14/14	2:12pm	IOXM56	SV1187-0101	EM0920, SV1187-01, Build: 1, "NV8500 144x144 3Gig RED XPT STD"
227916	11/14/14	2:11pm	IOXM57	SV1188-0101	EM0920, SV1188-01, Build: 1, "NV8500 144x144 3Gig RED XPT STD"
232324	11/14/14	2:11pm	IOXM58	SV1203-0000	EM0785, SV1203-00, Build: 0, "NV8500 3Gig SDI 16 M3 / 2 COAX OUT"
10788868	11/14/14	2:12pm	IOXM59	SV1212-0108	EM0917, SV1212-01, Build: 8, "NV8500 10 Gige 3 ETHERNET IN"
11812868	11/14/14	2:13pm	IOXM60	SV1213-0108	EM0943, SV1213-01, Build: 8, "NV8500 10 Gige 3 ETHERNET OUT"
5032014	12/15/14	12:09pm	IOXM61	SV1204-0201	EM0938, SV1204-02, Build: 1, "NV8500 288x288 3Gig XPT HYBRID"
0	11/14/14	2:13pm	ROM	SV103804	SV1038-04A EM0833ROM Oct1 2010 09:37:32
0	11/14/14	2:13pm	ROM1	SV1038-05	SV1038-05A EM0833ROMJun 10 2011 11:40:33
72088	11/14/14	2:11pm	APP	MADI_APP	SV1073-06AVersion 6.1.0.58
8382	11/14/14	2:11pm	BOOT	MADI_BOOT	SV0770-01A0 Version 1.2.0.0
1484404	11/14/14	2:11pm	PLD	MADI_FROM_AA	SV1066-04A0; NV8900-AA->MADI
1484960	11/14/14	2:11pm	PLD	MADI_FROM_AES	SV1066-03A0; NV8900-AES(Coax)->MADI, NV8900-AES(Bal)->MADI
1484404	11/14/14	2:11pm	PLD	MADI_TO_AA	SV1067-05A0; NV8900-MADI->AA
1484960	11/14/14	2:11pm	PLD	MADI_TO_AES	SV1067-03A0; NV8900-MADI->AES(Coax), NV8900-MADI->AES(Bal)

SV1056-2001 and SV1057-2001

See Special Note under "Supported Assemblies" for pre-EM0815-20.

File Names

SV1056-2001.bit,mcs

Supported Assemblies

- EM0815-10, EM0815-11, EM0815-12

NV8500 v3.7.1 Release Notes

If these assemblies are using SV1036-15 and SV1037-15 or earlier, then they must be JTAG programmed because of power supply noise issues preventing proper programming via control card. Subsequent versions can be programmed via control card if version -16 or later has already been loaded.

- EM0815-20

Refer to SV1036-2118 for operation, but note that this version does not embed audio into the video as this is the MADI version. The first 64 audio channels are inserted into the MADI output.

Dip Switch Settings

- Place DIP switch 4 to 'on' to configure MADI output for 56-channel mode. (The BadCom LED will not blink when this DIP switch is set to 'on'.)
- Any DIP switch in the on position, except as noted, will cause BadCom LED to blink.

SV1057-2001

File Names

SV1057-2001.bit,.mcs

Refer to drawing for SV1036-21 and SV1056-19 for performance and errata information.

SV1082-0902

File Names

SV1082-0902.bit,.mcs

Supported Assemblies

EM0816-00

Refer to SV1036-2118 for changes, features, etc.....

SV1083-0902

File Names

SV1083-0902.bit,.mcs

Supported Assemblies

EM0816-00

Refer to SV1056-2118 for changes, features, etc.....

SV1095-0902

File Names

SV1095-0902.bin,.mcs

Supported Assemblies

- EM0816-00
- EM0816-50

Refer to SV1036-2118 for performance, except note that this is a “filler” output card version, and thus does not do any audio/video processing.

Note that none of these changes would affect this filler card. However, to keep this revision in sync with the other hybrid expansion output cards, this SV has been updated with the new revision number as well.

SV1126-2000

File Names

SV1126-2000.bit,.mcs

Supported Assemblies

- EM0878-00

SV1126-2000 fixes an issue in SV1126-1800 which would cause the FPGA to not reload from boot code to newly programmed MRC image after a power cycle.

All SV1126-1800 cards should be JTAG programmed to SV1126-1902 prior to MRC updates.

Refer to drawing for SV1036-21 for performance and errata information.

SV1127-2001

File Names

SV1127-2001.bit,.mcs

Supported Assemblies

EM0878-00

Refer to drawing for SV1036-21 for performance and errata information.

SV1162-0503

File Names:

SV1162-0503.bit,.mcs

MRC Reports Version: SV1162-05, 5.0.0.3

Supported Assemblies

EM0898-00

Key Features, Additions, or Changes for this Release

- [NV8500-1442] Because there is no external pull-up resistor on the FPGA ‘Done’ pin, the configuration was changed to drive the ‘Done’ pin high upon completion of the configuration. This resolved the problem of hybrid input cards not configuring sometimes.

NV8500 v3.7.1 Release Notes

- Added flywheel so that if there is a switch on the input video, there is a clean transition on the audio.

Known Issues

- This code has not been modified to support the newer version of the SiLabs 5324.
- SV1162-05 fixed an issue where sometimes modules would not boot (< 1%). For this fix to take effect, the golden code space must have been programmed using JTAG with SV1162-05 or later.

SV1172-0503

File Names

SV1172-0503.bit,.mcs

MRC Reports Version: SV1172-05, 5.0.0.3

Supported Assemblies

EM0903-00

Key Features, Additions, or Changes for this Release

- [NV8500-1442] Because there is no external pull-up resistor on the FPGA ‘Done’ pin, the configuration was changed to drive the ‘Done’ pin high upon completion of the configuration. This resolved the problem of hybrid input cards not configuring sometimes.
- Added flywheel so that if there is a switch on the input video, there is a clean transition on the audio.

Known Issues

- This code has not been modified to support the newer version of the SiLabs 5324.
- SV1172-05 fixed an issue where sometimes modules would not boot (< 1%). For this fix to take effect, the golden code space must have been programmed using JTAG with SV1172-05 or later.

SV1174-0902

File Names

SV1174-0902.bit,.mcs

Supported Assemblies

* EM0816-00

Refer to SV1036-2118 for changes, features, etc.....

Features Specific to This Code

This FPGA code contains the ABI (audio break-in) feature. However, it may not yet be supported by the control system, control card application code, or the control card FPGA. In the event that it is not supported by the upstream control, it will be transparent and non-functional to the user.

Other Changes

There were no changes in any other component.