

0.1 Chip Files

0.1.1 Introduction

The chip files are a collection of chip-specific header files. Each chip file targets a specific STB or DVD device and exports constants that are required by the developer to boot and initialize an STAPI-based application. The details of how this is done is beyond the scope of this document.

These release notes refer to version 3.0.13 of the chip files.

0.1.2 Usage

Typically, a chip header file will export the following constants:

- Module base addresses of the form `ST<CHIP>_<MODULE>_BASE_ADDRESS`.
- Module interrupt numbers of the form `ST<CHIP>_<MODULE>_INTERRUPT`.

`<CHIP>` refers to the target device *e.g.*, 5512.

`<MODULE>` refers to a cell on the chip *e.g.*, ASC. Where more than one module of the same type is present, additional qualification is required *e.g.*, ASC0, ASC1, *etc.*

Typically a generic constant is also defined for each of the specific chip constants:

- Generic module base address of the form: `<MODULE>_BASE_ADDRESS`
- Generic module interrupt number of the form: `<MODULE>_INTERRUPT`

This is useful when porting between devices as the same constant can be used for multiple devices. However this is not sufficient when multiple device types are included in the same platform. In this case multiple chip files will not be able to define the same generic constants. Compile options are used to control this behaviour:

- `REMOVE_GENERIC_ADDRESSES` will suppress the definition of all generic constants.
- `USE_<CHIP>_GENERIC_ADDRESSES` will enable the definition of generic constants for a particular chip header file.

Examples

When using a platform that includes STi5514 and STi7020 devices:

- `DVD_CFLAGS = '-DREMOVE_GENERIC_ADDRESSES'`
constants such as `VIDn_BASE_ADDRESS` will be undefined.
- `DVD_CFLAGS = '-DREMOVE_GENERIC_ADDRESSES -DUSE_5514_GENERIC_ADDRESSES'`
constants such as `VIDn_BASE_ADDRESS` will refer to the STi5514 device.
- `DVD_CFLAGS = '-DREMOVE_GENERIC_ADDRESSES -DUSE_7020_GENERIC_ADDRESSES'`
constants such as `VIDn_BASE_ADDRESS` will refer to the STi7020 device.

0.1.3 Implementation

The following table lists the available chip header files:

Header File	Description
chiprevision.h	Header file containing the Chip release revision.
st40gx1.h	ST40GX1 chip header file.
st40ngx1.h	ST40NGX1 chip header file (link to st40gx1.h).
sti5197.h	STx5197 chip header file.
sti7100.h	STi7100 chip header file.
sti7105.h	STi7105 chip header file.
sti7109.h	STx7109 chip header file.
sti7111.h	STx7111 chip header file.
sti7141.h	STx7141 chip header file.
sti5206.h	STx5206 chip header file.
sti7106.h	STx7106 chip header file.
sti7108.h	STx7108 chip header file.
stih205.h	STxH205 chip header file.
sthwp.h	Header file containing the name of all IPs present across all SOC's and some generic defines.
sti7105_ip.h	STx7105 ip header file containing IP revisions present on 7105 across different Cuts.
sti7111_ip.h	STx7111 ip header file containing IP revisions present on 7111 across different Cuts.
sti7141_ip.h	STx7141 ip header file containing IP revisions present on 7141 across different Cuts.
sti5206_ip.h	STx5206 ip header file containing IP revisions present on 5206 across different Cuts.
sti7106_ip.h	STx7106 ip header file containing IP revisions present on 7106 across different Cuts.

Table 1 List of chip header files

0.1.4 Changes from release 3.0.12 to release 3.0.13 (Release Date:19 May 2011)

- Support added for Lille(STiH205).

0.1.5 Changes from release 3.0.11 to release 3.0.12 (Release Date:8 Mar 2011)

- SBAG interrupt supported on linux on 7108.

0.1.6 Changes from release 3.0.10 to release 3.0.11 (Release Date:16 Dec 2010)

- PCIE_SYS_ERR interrupt added on 7108.

0.1.7 Changes from release 3.0.9 to release 3.0.10 (Release Date: 29 Oct 2010)

- Support added for 2nd instance of blitter on 7108
- Fixed 7108 PCIE_REG_BASE_ADDR in 7108

0.1.8 Changes from release 3.0.8 to release 3.0.9 (Release Date: 24 Sept 2010)

- Generic Ethernnet PHY interrupt defines added on 5206, 7111 , 7106, 7141, 5197.
- PDES interrupt added for 7108 & 7106 on linux
- TKDMA, ICAM, CRYPTO interrupts added for 7106 on linux
- STi7200 support removed.
- CEC wake up interrupt added for STi7108.
- DDTs / CQ Resolution : Defect RnDHV00031294 STi7105 sip_chip Fail to wakeup by PM_WAKEUP_IR when I set lowpower wakeup mode to IR and TIMER the same time.

0.1.9 Changes from release 3.0.7 to release 3.0.8 (Release Date: 7 July 2010)

- Added blitter interrupts for 2nd blitter on 7108.
- Added MIPHY & PCIE interrupts on 7108.
- sti7141_intmap.h file added

0.1.10 Changes from release 3.0.6 to release 3.0.7 (Release Date: 7 May 2010)

- Resolved ddts GNBvd80499 - STCOMPANION_Init hang on St7200
- Resolved DDTs GNBvd80421 - ILC Config on 7111. sti7111.h must be updated.
- HW/SW mapping implementation updates to reduce memory footprints in SDK (Static arrays moved to STCommon)
- Updated ST5206_AUD_HDMI_CEC_WAKEUP_INTERRUPT for 5206
- Modified external interrupt nomenclature from OS21_INTERRUPT_EXT0 to OS21_INTERRUPT_EXT_0 and realigned with BSP for 7105, 7106.
- 7108: Realigned interrupts with BSP.
- Updated for sti7111.h: Interrupts numbers for Linux (External Interrupts) & introduced SBAG support.
- Updated sti7141.h with SBAG support.
- Realigned Chip Infrastructure for 7106 BSP updates - OS21_INTERRUPT_ETH_GMAC_MAC, OS21_INTERRUPT_ETH_GMAC_PMT, OS21_INTERRUPT_ETH_GMAC1_PMT, OS21_INTERRUPT_ETH_GMAC1_MAC, OS21_INTERRUPT_EXTn.

0.1.11 Changes from release 3.0.5 to release 3.0.6 (Release Date: 25 February 2010)

- Fixed ddts GNBvd80129, GNBvd79998.
- Code cleanup: Removed ASC4 definition from 7105,7106.

- Documents upgradation.

0.1.12 Changes from release 3.0.4 to release 3.0.5 (Release Date: 09 November 2009)

- Interrupt Support for 7108, 7106, 5206/5289 on Linux.
- New PIOs configuration & fix for 7111.
- Added generic definition Metal layer address (7141,7105,7111,5206)
- Updated OS21 interrupt names wrt 7108 BSP updates & updated few address definitions.

0.1.13 Changes from release 3.0.3 to release 3.0.4 (Release Date: 25 August 2009)

- Added support for STx5206(OS21), STx7106 (OS21) & STx7108 (OS21).
- Code cleanup to remove support for ST20 devices.
- Removal of TLM specific definitions from all chipset header files.
- Resolved DDTs :
 - GNBvd77634 - Missing TANGO defines
 - GNBvd77371 - New IP headers kill C++ compatibility (7105, 7111, 7141, 7106 as well)
 - GNBvd77362 - MCHI_BASE_ADDRESS, CCSC_BASE_ADDRESS, MCHI_INTERRUPT missing in STi7108.h
 - GNBvd77300 - Ethernet (MAC/PMT) definitions for all supported chipsets
 - GNBvd75061 - link error when using external interrupt.
 - GNBvd73452 - Wrong TTX Base address in SDK 0.10.0 (apilib/config/chip/sti7105.h)
- Hardware to software mapping support. New files stxxxx_ip.h corresponding to each SOC added to define IP versions of various IPs present on that SOC. Supported devices are 7105, 7111, 7141, 7200, 5206, 7106.

0.1.14 Changes from release 3.0.2 to release 3.0.3 (Release Date: 15 October 2008)

- Added support for STx5197 (OS21).
- Added PCI, CEC, Standalone PIOs, CAP0, NANDFLASH, VDP0, VDP1 interrupts & CAP0 base address for STx7105.
- Added PCI, CAP0 interrupts & CAP0 base address for STx7111. Correction to CKG_C base address.
- Added CAP0 interrupt & base address for STx7141. Correction to ETH0_MDINT interrupt.
- Added CAP0 interrupt & base address for STx7200 cut2.
- Addition of TSMERGE1, TSMERGE2 base address defines for STx5100.

0.1.15 Changes from release 3.0.1 to release 3.0.2 (Release Date: 09 July 2008)

- STx7105 - Added HDMI CEC interrupt defines. Updates to base address defines in sync with latest validation bsp.

- Added MAILBOX_LX_AUDIO_x_BASE_ADDRESS, MAILBOX_LX_VIDEO_x_BASE_ADDRESS, MAILBOX_LX_VIDEO_x_INTERRUPT, MAILBOX_LX_AUDIO_x_INTERRUPT defines for STx7100, STx7109, STx7200, STx7111, STx7105, STx7141. These should preferably be used instead of the existing MAILBOX_x_BASE_ADDRESS defines.
- Added STx7200 cut2 support - sti7200.h supports 7200 cut2.
- Resolved DDTs GNBvd70339 - ST5100_TSMERGE_INTERRUPT not defined in STi5100.h

0.1.16 Changes from release 3.0.0 to release 3.0.1 (Release Date: 01 July 2008)

- Addition of 7141 interrupt number defines for Linux.

0.1.17 Changes from release 2.1.38 to release 3.0.0 (Release Date: 27 June 2008)

- STx7141 - Added FDMA_2, QAM_0, QAM_1, QAM_2, NQAM_CABLE, NQAM_VIDEO base address defines and FDMA_2 interrupt define.
- Release number changed to 3.0.0 (Major release) to signify backward incompatible change in base addresses for ST40 devices from virtual addresses to physical addresses since Release 2.1.34A0

0.1.18 Changes from release 2.1.37 to release 2.1.38 (Release Date: 23 June 2008)

- STx7141 - Added STCPU_ESTB, STCPU_ECM, STTHIS_CPU, STOTHER_CPU defines in line with 7141 Software uArchitecture. Added ERAM, PCI base address defines.

0.1.19 Changes from release 2.1.36 to release 2.1.37 (Release Date: 17 June 2008)

- Added support for STx7141 (OS21).
- Added PIO8-16 base address defines and PIO7-16 Interrupt defines for STx7105. Updated TSMERGE, PCM player, SPDIF player base address defines and PTI, Audio Mailbox interrupt defines for STx7105.
- Mailbox base address defines updated for 7111/7105/7200.
- Added EMI4, EMISS base address defines and DCS0, DCS1, PIO8, PIO9, PIO10, PIO11 interrupt defines for 7111.
- Diseqc base address & interrupt define added for 7100.

0.1.20 Changes from release 2.1.35 to release 2.1.36 (Release Date: 15 May 2008)

- Added support for STx7105 (OS21/Linux).
- Re-Resolved DDTs GNBvd67410 - 7200 interrupt definitions incorrect for 2.3.2 kernel

0.1.21 Changes from release 2.1.34A0 to release 2.1.35 (Release Date: 16 April 2008)

- STFAE changes integrated. Therefore, set STAPIREF_COMPAT=1 if using stapiref code.
- Addition of 7111 interrupt number defines for Linux.
- Updates to 7111 interrupt & address defines in sync with latest validation bsp.
- 32 bit addresses support (STEP 5) - consequently using physical addresses only for all ST40 chips.
- Resolved DDTS GNBvd67410 - 7200 interrupt definitions incorrect for 2.3.2 kernel.

0.1.22 Changes from release 2.1.33 to release 2.1.34A0 (Release Date: 13 February 2008)

- Added support for STx7111 (OS21).
- Virtual addresses defines changed to physical addresses for 5528, 7100, 7109, 7200.
- Resolved DDTS GNBvd66207 - sti7111.h includes defines for 2 PTIs when only 1 exists on the device.

0.1.23 Changes from release 2.1.32 to release 2.1.33 (Release Date: 07 November 2007)

- Added crc luma/chroma base addresses for STx7200.

0.1.24 Changes from release 2.1.31 to release 2.1.32 (Release Date: 05 October 2007)

- Added support for STx5162.

0.1.25 Changes from release 2.1.30 to release 2.1.31 (Release Date: 02 July 2007)

- External interrupt defines added for STx7100 and STx7109 for Linux.
- External interrupt defines corrected for STx7100 and STx7109 for OS21.

0.1.26 Changes from release 2.1.29 to release 2.1.30 (Release Date: 21 June 2007)

- Added interrupt defines for supporting Linux on STx7200.

0.1.27 Changes from release 2.1.28 to release 2.1.29 (Release Date: 23 April 2007)

- Fix for Mpeg Clock Recovery interrupt defines on STx7200

0.1.28 Changes from release 2.1.27 to release 2.1.28 (Release Date: 09 April 2007)

- Fixed DENC base address for STx7200.

- Fix for clock generator base address for 7200 VSOC simulator.

0.1.29 Changes from release 2.1.26 to release 2.1.27 (Release Date: 07 March 2007)

- Additional Interrupt, Base address defines added and corrected for Ips on STx7200.
- Added DISEQC0 interrupt & generic base address defines for STx7109.
- Configuration changes for sti7200.h header file.

0.1.30 Changes from release 2.1.25 to release 2.1.26 (Release Date: 01 March 2007)

- Corrected FDMA_1_BASE_ADDRESS for STx7200.
- Added DELTA_BASE_ADDRESS for STx7100.

0.1.31 Changes from release 2.1.24 to release 2.1.25 (Release Date: 21 February 2007)

- Added support for STx7200.
- Added CHIP_GetRevision() macro to get the Chip release revision string.
- Added SPDIF interrupt & base address defines for STx5188 (cut 2 onwards).
- Added base address defines for ILC, CKG_C, DISEQC, CRC, FUSE, SCIF, DELTA for STx7109.

0.1.32 Changes from release 2.1.23 to release 2.1.24 (Release Date: 27 October 2006)

- Added VDP interrupt defines for STx7109.

0.1.33 Changes from release 2.1.22 to release 2.1.23 (Release Date: 26 June 2006)

- Added UHF (2nd IRB) base address & interrupt define for STx5525.
- Updated to correct pti_0 interrupt name (changed in ST40 3.1.1P1 toolset) for STx7109 for use with the new toolset version.

0.1.34 Changes from release 2.1.21 to release 2.1.22 (Release Date: 18 April 2006)

- Added support for STx5107.

0.1.35 Changes from release 2.1.20 to release 2.1.21 (Release Date: 30 January 2006)

- Added FEI base address & interrupt define for STx5188.
- Swapped previous base addresses defined for FDMA_0 & FDMA_1 for STx5525.

0.1.36 Changes from release 2.1.19 to release 2.1.20 (Release Date: 19 January 2006)

- Added support for STx5525 (OS21).
- Added define for SSC_2_INTERRUPT for STx5100 in STi5100.h

0.1.37 Changes from release 2.1.18 to release 2.1.19 (Release Date: 28 November 2005)

- Added support for STx5188.
- Added support for Linux on STx7100 & STx7109.
- Added second PTI address and interrupt define for STx7109 (to be available on cut2).
- Added TSMERGE interrupt define for STx7100 and STx7109.
- Resolved Enhancement DDTs: GNBvd45338 - Update of chip for native compilation (Virtual SoC platform)

0.1.38 Changes from release 2.1.17 to release 2.1.18 (Release Date: 26 October 2005)

- Added support for STx7109.

0.1.39 Changes from release 2.1.16 to release 2.1.17 (Release Date: 30 September 2005)

- Resolved DDTs GNBvd43878 - sti7710.h should be backward compatible with cut2.x *
- Addresses and Interrupt definitions added for ips such as Fei, Pcm Player, Spdif Player, Pcm Reader, Spdif Reader, Hdmi, Sata, Cpxm, Src on STm8010.
- Addresses and Interrupt definitions added for ips such as Pcm Player, Pcm Reader, Spdif Player, Sata, Hdcp, Hdmi on STi7100.

* If buildtime flag/option STI7710_CUT2x is set, Cut 2x specific addresses are returned, otherwise the Cut3x addresses are returned by default.

0.1.40 Changes from release 2.1.15 to release 2.1.16 (Release Date: 21 July 2005)

- Addresses added/updated for STi7710 cut3.0 (HDMI, HDCP, VOS).
- Address and Interrupt definition added for HDDI on STm8010.

0.1.41 Changes from release 2.1.14 to release 2.1.15 (Release Date: 23 May 2005)

- Resolved DDTs: GNBvd41871 - BOARD and CHIP use LMI_BASE_ADDRESS for different meanings.*

* (Changed for STi5528, STi5100, STi5101, STi7710, STm5700, STi5105, STi7100, STi5301, STm8010)

0.1.42 Changes from release 2.1.13 to release 2.1.14 (Release Date: 19 Apr 2005)

- Added support for STm8010.
- Resolved DDTs: GNBvd41193 - ST7100_TSMERGE_BASE_ADDRESS is incorrect value in sti7100.h

0.1.43 Changes from release 2.1.12 to release 2.1.13 (Release Date: 22 Mar 2005)

Added support for STi5301.

Resolved DDTS:

- GNBvd39622 - Some #define lines in sti5528.h end with semicolon
- GNBvd39973 - Need for video & audio Mailbox base address definitions (7100)
- GNBvd40008 - 7100 Audio Configuration Register Base Address

0.1.44 Changes from release 2.1.11 to release 2.1.12 (Release Date: 09 Feb 2005)

Added support for STi7100.

0.1.45 Changes from release 2.1.10 to release 2.1.11 (Release Date: 24th Dec'04)

Added support for STm5700.

Changed base addresses for 5105(video, teletext, system config).

Size of reserved Internal Memory reduced for ST20 C1 (7710, 5105).

0.1.46 Changes from release 2.1.9 to release 2.1.10

Added support for 5105.

ST40 addresses: for 4629 (addresses added), EMI/LMI/PCI addresses for 5528 changed to P2 region.

Resolved DDTS:

- GNBvd35365 - Offset for interrupt exec register set for INTC2 but should be INTC1
- GNBvd36031 - Provide DiSEqC Base Address in header file for STi5100

0.1.47 Changes from release 2.1.8 to release 2.1.9

DDTS Resolved: GNBvd35201 - include of device.h which doesn't exist on ST40 toolset *

* This affects use of 4629 with 5528 on OS21.

Non functional header file with few basic definitions for 5105 (sti5105.h) added. This is still under development and is not intended for use presently.

0.1.48 Changes from release 2.1.7 to release 2.1.8

Added support for 7710.

Added support for OS21 on 5528 (ST40).

Fix for GNBvd32762 - ST5101_NUM_INTERRUPTS is too low

Fix for GNBvd32783 - PIO4/5 BASE ADDRESS & INTERRUPT not defined in sti5100.h file

0.1.49 Changes from release 2.1.6 to release 2.1.7

Fix for GNBvd31585 - ST5100_NUM_INTERRUPTS is too low.

Non functional header file with few basic definitions for 7710 (sti7710.h) added. This is still under development and is not intended for use presently.

0.1.50 Changes from release 2.1.5 to release 2.1.6

Fix for Gnbvd3113 - VTG line and vsync interrupt number defines are the wrong way around.

0.1.51 Changes from release 2.1.4 to release 2.1.5

Added support for 5101.

0.1.52 Changes from release 2.1.3 to release 2.1.4

Final release:

DVO base address added.

Alpha3:

Updated the interrupt numbers enum in sti5100.h to the latest specification.

Alpha2:

Added definitions for PIO4 and PIO5 base addresses to sti5100.h

Alpha1:

Added sti5100.h giving preliminary definitions for STi5100.

0.1.53 Changes from release 2.1.2 to release 2.1.3

Added support for STi5528. This release targets ST20 development, but will also be of use for ST40. The two CPUs see most system devices at the same physical address, and the following macros have been provided to control the ST40-specific top three bits:

- ST40_CACHE_TRANSLATE - access memory in P0 or U0, cached and translated, which is the normal mode
- ST40_CACHE_NOTTRANSLATE - access memory in P1, cached but untranslated
- ST40_NOCACHE_NOTTRANSLATE - access memory in P2, uncached and untranslated, which is the appropriate access for most system peripherals

In addition, some subsystems appear at two physical addresses, to facilitate access from both CPUs. The EMI memory, LMI registers and memory, PCI memory, IO and registers, and internal memory fall into this category. Two symbols have been provided in these cases: the normal one holds the address recommended for ST20, whilst the name including _ST40_ holds the address recommended for that CPU.

Where a block contains sub-blocks (eg the Video Decoder and Gamma Compositor), an overall base address has been given, plus absolute addresses for each sub-block. In this way, there is no need to sum two components to get, for instance, the GDP4 address; it is simply ST5528_GDP4_LAYER_BASE_ADDRESS.

0.1.54 Changes from 2.1.1 to release 2.1.2

- Added sti5517.h giving definitions for STi5517
- Corrections to blitter addresses in st40gx1.h, sti7015.h, sti7020.h

Resolved the following DDTs:

- GNBvd15674: Missing #define for PCP device

0.1.55 Changes from 2.1.0

Added compile options to allow suppression of generic constants. Switches are provided to globally remove all generic definitions and also to enable generic definitions for particular chip(s). See Section 0.1.2 for further information.

The STi5516 device is now fully supported (was Alpha support in previous release).

Fixed the following DDTs entries:

- GNBvd13698: Definitions in sti55xx.h
- GNBvd13950: Missing #define for extern int 4 (STi5514/16)

0.1.56 Changes from 2.0.4

This release has been made to reflect the addition of STi7020 to the list of supported chips. This takes the form of a new header file, sti7020.h. In addition to this ALPHA support has been added for the STi5516 device. No testing has been performed on the STi5516.

Fixed the following DDTs entries:

- GNBvd10532: IRB_BASE_ADDRESS is no longer defined
- GNBvd11293: No support for STi5516AA.
- GNBvd11320: ST5514_INTERNAL_MEMORY_END wrong.
- GNBvd11371: Missing base addresses for VFE

0.1.57 Changes from release 2.0.3

- Fixed the following DDTs:
 - GNBvd09398: #define for number of interrupts
 - GNBvd08719: sti7015.h: Badly defined AUDPCM_BASE_ADDRESS
 - GNBvd08997: Request Format Change in Release Notes: chip.rel
 - GNBvd09852: sti5514.h: AUDIO_IF_BASE_ADDRESS defined to unknown definition
 - GNBvd10217: Fifth UART not included in header file

Alpha 4:

- Added missing IRB constants; IRB_INTERRUPT and IRB_BASE_ADDRESS.

Alpha 3:

- Base address corrections in sti5514.h to PIO4, INTC and EMI after discovery of datasheet errors.

Alpha 2:

- Corrected PIO 5 base address definition in sti5514.h
- Corrected number of interrupt levels (now 16).

Alpha 1:

- First attempt at definitions for STi5514 in sti5514.h

0.1.58 Changes from release 2.0.2

- Updated st40gx1.h to correct PIO base address and interrupt definitions.

0.1.59 Changes from release 2.0.1

- Updated `sti5518.h` to include LINK HDD interrupt number.

0.1.60 Changes from release 2.0.0

- Added ST40 chip header files.
- Corrected teletext base address definitions (**GNBvd06577**).
- Corrected definitions for GAMMA cell base address and blitter offsets.
- Removed video and audio CD FIFO base address definitions from `st20tp3.h`. They should not be defined in this file because the TP3 does not have any on-chip CD FIFOs.

0.1.61 Changes from INCLUDE 1.7.2

All chip header files have now been moved to the 'chip' directory to improve tracibility and simplify the release process for modifications.

All constants exported by the header files have been re-named to `ST<CHIP>_<MODULE>_XYZ`. This is to avoid possible conflicts when moving to multi-chip platforms. The old constants exported from the chip header files is retained, for compatibility with existing applications.

0.1.62 Known Problems

None.

0.1.63 Outstanding Defects

None.

0.1.64 Testing level

There are no formal tests for the correctness of these files. Testing is by use in other component test harnesses.

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