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Linux support package (LSP) v3.2.5 for SPEAr eMPU family

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## **Introduction**

This document provides a summary for the contents of a specific Linux support package (LSP) software version for the SPEAr embedded eMPU family.

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# 1 Release information

**Table 1. Release information**

|                           |                                                                                                     |
|---------------------------|-----------------------------------------------------------------------------------------------------|
| LSP version               | 3.2.5                                                                                               |
| Delivery date             | June 19, 2012                                                                                       |
| Status                    | Validated                                                                                           |
| Reference U-Boot          | v2010.03                                                                                            |
| Reference Linux kernel    | 2.6.37                                                                                              |
| Reference GCC             | 4.6.2 20120301                                                                                      |
| Reference Binutils        | 2.20.51.20100809                                                                                    |
| Reference GDB debugger    | 7.2. 66                                                                                             |
| Reference GLIBC libraries | 2.10.2                                                                                              |
| X-Loader repository       | <a href="https://git.stlinux.com/spear/xloader.git">git://git.stlinux.com/spear/xloader.git</a>     |
| U-Boot repository         | <a href="https://git.stlinux.com/spear/u-boot.git">git://git.stlinux.com/spear/u-boot.git</a>       |
| Linux repository          | <a href="https://git.stlinux.com/spear/linux-2.6.git">git://git.stlinux.com/spear/linux-2.6.git</a> |
| Git tag                   | lsp-3.2.5                                                                                           |
| Toolchain repository      | <a href="ftp://ftp.stlinux.com/pub/stlinux/2.4">ftp://ftp.stlinux.com/pub/stlinux/2.4</a>           |
| PC OS supported           | Fedora 13                                                                                           |

## 2 Target platforms

The following table reports the hardware platforms and the relevant configurations supported by this LSP version. Each target may consist of one or more physical boards (kit).

Y: supported                      N: not supported                      -: not applicable

**Table 2. Target platforms**

| Target      | Boards                                                                            | Supported | Configuration                                     |
|-------------|-----------------------------------------------------------------------------------|-----------|---------------------------------------------------|
| SPEAr300    | EVALSPEAR300                                                                      | Y         | CPUs @ 333 MHz<br>Bus @ 166 MHz<br>DDR3 @ 333 MHz |
| SPEAr310    | EVALSPEAR310                                                                      | Y         | CPUs @ 333 MHz<br>Bus @ 166 MHz<br>DDR3 @ 333 MHz |
| SPEAr320S   | EVALSP320SCPU: SPEAr320S CPU evaluation board                                     | Y         | CPUs @ 333 MHz<br>Bus @ 166 MHz<br>DDR3 @ 333 MHz |
|             | EVALSP320SPLC: SPEAr320S evaluation kit for PLC applications, including CPU board | Y         | CPUs @ 333 MHz<br>Bus @ 166 MHz<br>DDR3 @ 333 MHz |
|             | EVALSP320SHMI: SPEAr320S HMI evaluation board                                     | Y         | CPUs @ 333 MHz<br>Bus @ 166 MHz<br>DDR3 @ 333 MHz |
| SPEAr600    | EVALSPEAR600                                                                      | Y         | CPUs @ 333 MHz<br>Bus @ 166 MHz<br>DDR3 @ 333 MHz |
| SPEAr1310-C | EVALSP1310CPU: main board (SPEAr1310 Rev. C)                                      | Y         | CPUs @ 500 MHz<br>Bus @ 166 MHz<br>DDR3 @ 533 MHz |
|             | EVALBASEXP: Base exp. board for SPEAr1310 Rev.C                                   | Y         | CPUs @ 500 MHz<br>Bus @ 166 MHz<br>DDR3 @ 533 MHz |
| SPEAr1340   | EVALSP1340CPU SPEAr1340 CPU evaluation board                                      | Y         | CPUs @ 600 MHz<br>Bus @ 166 MHz<br>DDR3 @ 533 MHz |

### 3 Summary of main changes

This LSP version includes the following main changes:

- SOC/board support added/removed
  - SPEAr320 replaced by SPEAr320S. Support added for HMI board version 3.1 and PLC board
  - Added Support for SPEAr1310-C + SPEAr1300 Base Expansion Board
- Xloader:
  - SPEAr 1310 Rev C support added
  - Updated default bootargs for all boards
- U-Boot:
  - Added support for SPEAr1310-C
  - Corrected support for listing devices in imls in NAND
  - Added EHCI and FAT file systems support for SPEAr3xx and SPEAr6xx based boards.
  - Bug fix for USB pendrive detection which was abnormally slow when reporting status change or other commands
  - imls: Reduced the heap requirement of imls
  - Added support for SPI in U-Boot
  - Turns off the i2c controller when setting the speed
  - Saveenv command modified for usbtty mode
- Linux:
  - Added support of SPEAr1310-C and SPEAr320S HMI 3.1 board
  - I2C bus recovery hook added in SPEAr1310-C and SPEAr 320S.
  - Default defconfig of Separ13xx now contains support for OTG
  - Fixed bugs in OTG for hub support
  - Fixed issues in I2S. Other enhancements include support of wider sample rate
  - Updated MiPhy setting for proper functioning with PCIe
  - Several FSMC/NAND enhancements added to improve performance, DMA support optionally available, ready/busy support added by configuring the pad as GPIO.
  - FSMC ready/busy feature is now working properly
  - Several Power Management enhancements added, such as support for switching off the board on hibernate, disable & flush L2 before L1 D-Cache, shutting off all power domains on suspend.
  - Merged with latest stable linux-2.6.37.6
  - Updated Mali/UMP driver to version r2p4. These features, if needed, must be enabled using Linux menuconfig tool before rebuilding the kernel source tree.
  - Support for Video Encoded added

- In SPEAr1340 clock source for CPU changed. New set of CPU frequencies supported. The new CPU frequency levels are:

166000  
200000  
250000  
300000  
400000  
500000  
600000

*Note:* 1 *For detailed changes you can also use the following git commands:*

`git diff lsp-3.2.3..lsp-3.2.5`

*This will give the differences in each file with respect to the earlier release*

`git log lsp-3.2.3..`

*This will give log messages for lsp-3.2.3 up till now.*

- 2 *For SPEAr320SHMI board with lsp-3.2.5, to use the HMI LCD panel properly, it is necessary to select it through the menuconfig, as follows:*

Device Drivers → Graphics Support → Support for Frame Buffer Devices → Arm  
Primecell PL110 support → LCD Panel → Emerging Display CLCD 5.7"  
TFT(680X480)



## 4 Patches

**Table 3. List of available patches**

| Patch # | Summary                                                                       | Boards affected | Description of handled issue                                                                                                                                                                                                                                                                                                                                            |
|---------|-------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <b>net/macb</b><br><br>Move random hwaddr generation from init to open        | EVALSP320SHMI   | Random MAC address was being written to MACB registers. MAC address passed from uboot was not sent to MACB.<br>See also Table 7: List of known issues ID 176821 " <a href="#">MAC address from uboot not set to MACB [SPEAR320S]</a> "                                                                                                                                  |
| 2       | <b>SPEAR1340:clock</b><br><br>Configure pll1 to 1.2GHz before spear13xx_init  | EVALSP1340CPU   | PLL1 was not configured to 1.2 GHz before init of board was called. This resulted in wrong clock being generated by SD controller. See also Table 7: List of known issues ID 171683 " <a href="#">Inaccurate clock programmed by Linux</a> "                                                                                                                            |
| 3       | <b>i2c/designware</b><br><br>Do not use _interruptible_ variant call for wait | All             | With interruption of I2C transfer (through signal) sometimes I2C was moved to unsafe state. This resulted in failed transfers on I2C even on successive tries. This issue was reproduced by killing I2S audio application while it was playing audio. See also Table 7: List of known issues ID 169720 " <a href="#">I2S kill gives I2C timeout msg [SPEAR1310-C]</a> " |
| 4       | <b>SPEAR/VENC</b><br><br>Fix encoder driver debug define                      | EVALSP1340CPU   | Enabling debug messages in SPEAr1340 video encoder driver was not working due to a wrong #define, this patch solves the issue. See also Table 7: List of known issues ID 178675 " <a href="#">Debug messages in video encoder driver not working [SPEAR1340]</a> "                                                                                                      |

### 4.1 Accessing patches

Patches are pushed in a maintenance branch of LSP 3.2.5 named "lsp-3.2.5.y" on the GIT server repository.

To retrieve the patches, perform these steps:

1. Clone code from GIT repository to the working directory:  

```
git clone git://git.bri.st.com/spear/linux-2.6.git
```
2. Checkout code from maintenance branch into a local branch (e.g. maint):  

```
git checkout -b maint origin/lsp-3.2.5.y
```

Now this code contains all the patches pushed in the maintenance branch.

Use the GIT log to see the commit messages of the patches.

## 5 Features

The following table reports the features supported by this LSP version that have a general scope, not related to specific hardware IPs or external peripherals.

**Table 4. Features supported in LSP 3.2.5**

| Category component | Description                                                             | Targets                | Remarks                                                                                                                                                                                                                                                                                             |
|--------------------|-------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Multiprocessing    | Symmetric multiprocessing (SMP) in Linux kernel for dual core platforms | SPEAr1310, SPEAr1340   | NA                                                                                                                                                                                                                                                                                                  |
| Power Management   | CPU Frequency                                                           | All                    |                                                                                                                                                                                                                                                                                                     |
|                    | Standby                                                                 | All                    | For SPEAr3xx/SPEAr6xx this is with echo mem > /sys/power/state. For others it is echo standby > /sys/power/state.<br>While for others with echo standby > /sys/power/state. SPEAr1310-C not stable after moving from low power state mode. no_console_suspend is not supported in SPEAr3xx/SPEAr6xx |
|                    | Suspend to RAM                                                          | SPEAr1310-C, SPEAr1340 | SPEAr1310-C not stable after moving from low power state mode                                                                                                                                                                                                                                       |
|                    | Hibernation                                                             | SPEAr1310-C, SPEAr1340 | SPEAr1310-C not stable after moving from low power state mode                                                                                                                                                                                                                                       |
| Sound              | Support of ALSA framework                                               | SPEAr1310, SPEAr1340   | NA                                                                                                                                                                                                                                                                                                  |
| Video              | V4L2 framework                                                          | SPEAr1340              | NA                                                                                                                                                                                                                                                                                                  |
| Camera             | V4L2 framework                                                          | SPEAr1340              | NA                                                                                                                                                                                                                                                                                                  |
| Flashing Tool      | USB based Flashing tool                                                 | All                    | NA                                                                                                                                                                                                                                                                                                  |

## 6 Clock configuration changes

### 6.1 CPU clk

CPU is now fed through PLL1.

For 600 MHz cpu clock configuration:

vco1/pll1  
(1200 MHz) → sys clk → cpu clk  
(600 MHz)

For 500, 400 MHz cpu clock configuration:

vco3/pll3  
(1000/800/664 MHz) → sys clk → cpu clk  
(500/400 MHz)

For 300, 250, 166 MHz cpu clock configuration, LSP 3.2.5 switched to sys\_synth\_clk:

vco1div2  
(600 MHz) → sys\_synth\_clk  
(SSCG5) → sys clk → cpu clk  
(300/250/166 MHz)

- Note:
- 1 vco1/pll1 settings at 1.2 GHz are fixed and never changed.
  - 2 To remain mostly at synth, the 332 MHz option has been eliminated, since it cannot be generated from synth and instead 300 MHz has been added.

### 6.2 AMBA (AHB/APB clk)

There is no change in AHB/APB clock configuration except that the source vco1div2 clock is at 600 MHz.

vco1div2  
(600 MHz) → amba\_synth\_clk  
(SSCG7) → ahb clk  
(166 MHz)

└──→ apb clk  
(83 MHz)

### 6.3 SSCG blocks

All SSCG blocks except SSCG5 and SSCG7 (above mentioned sys and amba clk synthesizers) are configured for vco1div4 input.

Given from above description, vco1div4 is fixed at 300 MHz, thus impacting all SSCGs blocks. The rate table has been adapted for each synthesizer in order to adapt to new input clock rate (300 MHz).

## 6.4 XYSYNT blocks

- I2S\_DIV1, I2S\_DIV2: Pad clock is used as source
- C3\_\_CLK\_SYNT: vco1div2 is considered as source
- UART0\_\_CLK\_SYNT: Currently not used in s/w
- UART1\_\_CLK\_SYNT: Currently not used in s/w
- GMAC\_CLK\_SYNT: PLL2 is used as input clock source
- MCIF\_SD\_\_CLK\_SYNT: vco1div2 is used as clock source
- MCIF\_CFXD\_\_CLK\_SYNT: vco1div2 is used as clock source
- ADC\_CLK\_SYNT: HCLK is used as source

Given from above descriptions

- vco1div2 is now 600 MHz impacting C3CLK\_SYNT, UART0/\_CLK\_SYNT, MCIF\_SDCLK\_SYNT and MCIF\_CFXD\_\_CLK\_SYNT
- PLL2 is fixed at 125 MHz
- HCLK is fixed at 166 MHz

As a result, the rate table of all synthesizers has been adapted, taking VCO1DIV2 as input clock.

*Note: The rate table for SSCG and XYSYNT has been updated in arch/arm/mach-spear13xx/spear1340\_clock.c.*

## 7 Linux device drivers for SOC IPs

The following table reports the device drivers supported by this LSP version for functionality provided through software concerned with internal hardware IPs.

Y: supported                      N: not supported                      -: not applicable

**Table 5. Linux device drivers for SOC IPs**

| Hardware component        | Description                 | SPEAr 300 | SPEAr 310 | SPEAr 320S | SPEAr 600 | SPEAr 1310-C | SPEAr 1340 | Remarks                                                                  |
|---------------------------|-----------------------------|-----------|-----------|------------|-----------|--------------|------------|--------------------------------------------------------------------------|
| ADC                       | A/D converter               | Y         | Y         | Y          | Y         | Y            | Y          |                                                                          |
| Accelerometer             | Motion sensor               |           |           |            |           |              |            |                                                                          |
| CAN                       | CAN ports                   | -         | -         | Y          | -         | N            | -          |                                                                          |
| CLCD                      | CLCD controller             | Y         | -         | Y          | Y         | Y            | Y          |                                                                          |
| CEC                       | CEC controller              | -         | -         | -          | -         | -            | Y          | Tested in loopback only                                                  |
| Camera                    | Camera controller           | -         | -         | -          | -         | -            | Y          | Tested with only one sensor                                              |
| DMAC                      | DMA controller              | Y         | Y         | Y          | Y         | Y            | Y          |                                                                          |
| EMI                       | Expansion memory I/F        | -         | -         | Y          | -         | N            | -          | PNOR is attached on EMI interface                                        |
| Ethernet (MAC)            | LAN                         | Y         | Y         | Y          | Y         | Y            | Y          | SPEAr3xx have Fast Ethernet interface all others have also Giga Ethernet |
| Ethernet MACB (SMII/RMII) | LAN                         | -         | Y         | Y          | -         | -            | -          |                                                                          |
| E1/ TDM/HDLC/ RS485       | HDLC controller             | -         | Y         | -          | -         | N            | -          |                                                                          |
| Flash memory NAND         | FSMC controller             | Y         | Y         | Y          | Y         | Y            | Y          |                                                                          |
| Flash memory SNOR         | SMI controller              | Y         | Y         | Y          | Y         | Y            | Y          |                                                                          |
| Gyroscope                 | Gyroscope controllers       | -         | -         | -          | -         | -            | Y          |                                                                          |
| GPIO / XGPIO              | Standard and extended GPIOs | Y         | Y         | Y          | Y         | Y            | Y          |                                                                          |
| GPT                       | General purpose timers      | Y         | Y         | Y          | Y         | Y            | Y          |                                                                          |

Table 5. Linux device drivers for SOC IPs (continued)

| Hardware component             | Description                         | SPEAr 300 | SPEAr 310 | SPEAr 320S | SPEAr 600 | SPEAr 1310-C | SPEAr 1340 | Remarks                                                                  |
|--------------------------------|-------------------------------------|-----------|-----------|------------|-----------|--------------|------------|--------------------------------------------------------------------------|
| GPU (MALI 200)                 | 2D/3D graphics                      | -         | -         | -          | -         | -            | Y          |                                                                          |
| Hardware video decoder/encoder | Video accelerators                  | -         | -         | -          | -         | -            | Y          |                                                                          |
| HDMI TX                        | HDMI TX controller                  | -         | -         | -          | -         | -            | Y          | Tested with hdmi tx on TV through HDMI Plug outside LSP                  |
| I2C                            | I2C controller                      | Y         | Y         | Y          | Y         | Y            | Y          | Slave mode not supported                                                 |
| I2S                            | I2S controller for audio            | N         | -         | Y          | -         | Y            | Y          | Tested with STA529 codec                                                 |
| JPEG                           | JPEG codec                          | Y         | Y         | Y          | Y         | N            | -          |                                                                          |
| Keypad                         | Keypad controller                   | Y         | -         | -          | -         | Y            | -          |                                                                          |
| MCIF (SD/MMC)                  | Memory card I/F                     | Y         | -         | Y          | -         | N            | Y          |                                                                          |
| MCIF (XD/CF/CF+)               | Memory card I/F                     | -         | -         | -          | -         | -            | -          | Not tested                                                               |
| Magnetometer                   | Motion sensor                       | -         | -         | -          | -         | -            | Y          |                                                                          |
| PCIe                           | PCIe controller                     | -         | -         | -          | -         | Y            | Y          | Slave mode not supported                                                 |
| PWM                            | PWM controller                      | -         | -         | -          | -         | Y            | Y          | Not validated                                                            |
| RTC                            | Realtime clock                      | Y         | Y         | Y          | Y         | Y            | Y          |                                                                          |
| SATA                           | SATA controller                     | -         | -         | -          | -         | Y            | Y          |                                                                          |
| Security Coprocessor (C3)      | Crypto accelerator                  | Y         | Y         | Y          | -         | Y            | Y          |                                                                          |
| SPP                            | Legacy parallel port                | -         | -         | Y          | -         | -            | -          | Not validated                                                            |
| SSP                            | SPI port                            | Y         | Y         | Y          | Y         | Y            | Y          | Slave mode not supported                                                 |
| SPDIF Out                      | SPDIF playback controller for audio | -         | -         | -          | -         | -            | Y          | Tested with HDMI tx on TV                                                |
| SPDIF In                       | SPDIF recorder for audio            | -         | -         | -          | -         | -            | Y          | Tested with loopback with SPDIF out and with sound blaster from Creative |

Table 5. Linux device drivers for SOC IPs (continued)

| Hardware component | Description              | SPEAr 300 | SPEAr 310 | SPEAr 320S | SPEAr 600 | SPEAr 1310-C | SPEAr 1340 | Remarks |
|--------------------|--------------------------|-----------|-----------|------------|-----------|--------------|------------|---------|
| Temperature sensor |                          | -         | -         | -          | -         | Y            | Y          |         |
| Touchscreen        |                          | Y         | -         | Y          | Y         | Y            | Y          |         |
| UART               | Asynchronous serial port | Y         | Y         | Y          | Y         | Y            | Y          |         |
| USB DEVICE         | USB device controller    | Y         | Y         | Y          | Y         | -            | -          |         |
| USB HOST           | USB host controller      | Y         | Y         | Y          | Y         | Y            | Y          |         |
| USB OTG            | USB OTG controller       | -         | -         | -          | -         | Y            | Y          |         |
| WATCHDOG           | Watchdog timer           | Y         | Y         | Y          | Y         | Y            | Y          |         |
| Video In           | Video In controller      | -         | -         | -          | -         | -            | N          |         |

## 8 Bugs closed in LSP 3.2.5

Table 6. Bugs closed in LSP 3.2.5

| Category / Component | Summary                                                           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Severity | Relevant targets | Workaround | ID     |
|----------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------|------------|--------|
| Accelerometer        | Input device events are not generated                             | <p>Accelerometer and Magnetometer data can be read properly through device attributes.</p> <p>But if we read the data from input framework based application, events are not generated. The following behavior is observed:</p> <ol style="list-style-type: none"> <li>1. Magnetometer: events are generated once and data is received once for (x,y,z) axis</li> <li>2. Accelerometer: No events are generated and so data is not read</li> <li>3. Gyroscope: The same application works fine reading gyroscope data</li> </ol> | Normal   | SPEAR1340        |            | 158086 |
| Camera               | Only one pixel format is supported. Not working for other formats | <p>When a camera application was used to capture data for different pixel formats i.e V4L2_PIX_FMT_YUYV V4L2_PIX_FMT_RGB565 V4L2_PIX_FMT_RGB24 V4L2_PIX_FMT_UYVY</p> <p>When the same captured data was played with the respective captured format, good display was not produced.</p> <p>Using mplayer, captured data produced good display only for yuy2 format</p>                                                                                                                                                            | Plus     | SPEAR1340        |            | 156496 |
| Camera               | Embedded codes sync not working                                   | Image capture for Embedded codes sync was not working for camera IP                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Plus     | SPEAR1340        |            | 163386 |



Table 6. Bugs closed in LSP 3.2.5 (continued)

| Category / Component | Summary                                                                         | Description                                                                                                                                                                                                                         | Severity | Relevant targets                                                 | Workaround                                                                               | ID     |
|----------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------|
| Ethernet             | Unable to set the MTU size if interface is up                                   | When performing these steps:<br>ifconfig eth0 mtu 1000<br>eth0: had to be stopped to change its MTU SIOCSIFMTU: Device or resource busy. MTU field was not set to 1000 it accepted only 1500.                                       | Normal   | SPEAr300 SPEAr310 SPEAr320S<br>SPEAr600 SPEAr1310-C<br>SPEAr1340 |                                                                                          | 115905 |
| HDMI                 | With some resolutions set on CLCD no image is displayed on TV connected to HDMI | This was observed with resolution of 480 X 272                                                                                                                                                                                      | Normal   | SPEAr1340                                                        | Setting proper resolution solves this. Tests was giving resolution not supported by HDMI | 149878 |
| HDMI                 | HDMI TX - Interrupts Not Received Sometimes                                     | Sometimes interrupts were not received from HDMI device. This resulted in no display on HDMI device                                                                                                                                 | Plus     | SPEAr1340                                                        |                                                                                          | 149881 |
| I2C                  | Input event handler messages in kernel bootlog                                  | Following messages from input event handler were generated for all the input devices (cam, gyro, acc, mag, sta529...) available to SPEAr boards. e.g for magnetometer:<br>evbug.c:Connected device:input5 (magnetometer at unknown) | Normal   | SPEAr1340                                                        |                                                                                          | 158078 |
| LCD                  | Enable DMA only when required                                                   | DMA is enabled even if there is no request for display from clcd controller. Current implementation does a memset 0 in such cases. This is effecting bandwidth and power consumption of system.                                     | Normal   | SPEAr300 SPEAr320S<br>SPEAr600 SPEAr1340                         |                                                                                          | 114451 |

Table 6. Bugs closed in LSP 3.2.5 (continued)

| Category / Component | Summary                                                                     | Description                                                                                                                                                                                                                                                     | Severity | Relevant targets | Workaround                                       | ID     |
|----------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------|--------------------------------------------------|--------|
| OTG                  | Board hangs when connected as device (Observed on fedora machine)           | On connecting OTG cable's B-type to SoC (making it device) and A-type to Linux PC (OTG host), when board booted up, it hung, giving the following error<br>USB RESET USB RESET zero gadget: high speed config #3: source/sink req 80.06 protocol STALL; err -22 | Plus     | SPEAR1340        |                                                  | 157742 |
| OTG                  | USB OTG: Kernel crashes when OTG type-A connector detached                  | Connected Type-A plug on SoC. On detaching this plug then the kernel crashed. No device was connected on Type-B plug.                                                                                                                                           | Plus     | SPEAR1340        |                                                  | 157811 |
| OTG                  | USB OTG: Pendrive is not detected when Type-A connector is inserted after B | Connected B-type end of OTG cable to Pendrive (Device) Power up Board Connect A-type to SoC (Soc is now host) Pendrive was NOT detected If Pendrive was removed and inserted again, it was detected.                                                            | Normal   | SPEAR1340        | Reconnect Pendrive and it will work              | 157824 |
| OTG                  | Some Pendrives are not working under stress.                                | Large data copy on Kingston failed (400 MB transfer failed)                                                                                                                                                                                                     | Minor    | SPEAR1340        |                                                  | 146543 |
| SSP                  | Unable to mount file system on memory                                       | System tested with SPI memory attached to board. This memory is exporting mtd block. When try to mount any file system it was failing.                                                                                                                          | Minor    | SPEAR600         | Other SPI memory read write are working          | 141767 |
| UART                 | UART1 not working on 320S                                                   | No data transfer was taking place on UART1                                                                                                                                                                                                                      | Plus     | SPEAR320S        |                                                  | 158628 |
| UART                 | UART data transfer missing data above 115200                                | System tested with either external loopback, or data using two ports of same or different UART. UART comparison failed at speeds above 115200.                                                                                                                  | Minor    | SPEAR320S        | Flow control should be used in case of data loss | 79576  |

Table 6. Bugs closed in LSP 3.2.5 (continued)

| Category / Component | Summary                                                   | Description                                                                                                                                                                                                                                           | Severity | Relevant targets                                              | Workaround                               | ID     |
|----------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------------------------------------------------------|------------------------------------------|--------|
| USB HOST             | S320s CPU + S320s<br>New_HMI: udev exception              | If USB was connected on the board and we booted it, a exception was observed: udevadm settle - timeout of 3 seconds reached, the event queue contained:<br>/sys/devices/platform/spear-ohci.0/usb2/2-1/2-1:1.0/host0/target0:0:0:0:0:0/block/sda/sda1 | Normal   | SPEAr320s                                                     |                                          | 156266 |
| USB Utils            | Flashing utility on SPEAr 1340 Nand                       | Flasher did not detect the NAND device on SPEAr1340.                                                                                                                                                                                                  | Plus     | SPEAr1340                                                     |                                          | 158076 |
| UBOOT                | Copy from RAM to unaligned flash addresses does not work. | Copy from RAM to unaligned addresses does not work but at aligned addresses it is fine.                                                                                                                                                               | Minor    | SPEAr300, SPEAr310, SPEAr320S, SPEAr600, SPEAr1310, SPEAr1340 | Normally unaligned copy is not required. | 82797  |
| UBOOT                | USB boot does not work with some specific Pendrives       | A few USB Pendrives were not working for USB boot, e.g. Kingston DT101 G2 (8GiB) Moserbear                                                                                                                                                            | Normal   | SPEAr1340                                                     |                                          | 139385 |

Table 6. Bugs closed in LSP 3.2.5 (continued)

| Category / Component | Summary                                      | Description                                                                                                                                                                | Severity | Relevant targets                                              | Workaround | ID     |
|----------------------|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------------------------------------------------------|------------|--------|
| UBOOT                | Random Copy to Flash failures                | Sometimes copy to Flash generated an error "copy to Flash... flash.c[221] FIXME: rc=-5"                                                                                    | Plus     | SPEAr300, SPEAr310, SPEAr320S, SPEAr600, SPEAr1310, SPEAr1340 |            | 146182 |
| Xloader              | Xloader Bootargs and U-Boot default bootargs | Xloader bootargs and U-Boot default bootargs picked file system from wrong mtblock. Mtblock for NOR or NAND fs shifted due to new mtd block created because of SPI memory. | Plus     | SPEAr1340                                                     |            | 140826 |

## 9 Known issues

The following table reports known issues related to this LSP version.

**Table 7. List of known issues**

| Category / Component | Summary                                                      | Description                                                                                                                                                                                                                                                                                                                     | Severity | Relevant targets | Workaround | ID     |
|----------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------|------------|--------|
| ADC                  | Continuous mode not working                                  | While reading ADC channel with continuous mode following error occurs:<br>Error in reading return value: -1 Errno set to 11 (EAGAIN)                                                                                                                                                                                            | Plus     | SPEAR300         |            | 71819  |
| Camera               | When iomethod is selected, user pointer green line displays. | When iomethod is used, user pointer captures from the camera the green line that is seen at the start of every frame. One extra frame is also captured for this iomethod. When using mmap method, the exact number of frames is captured, with no green line. Both methods are verified using mplayer to display captured data. | Normal   | SPEAR1340        |            | 156391 |
|                      | Missing interlaced frame support for CAMIF                   | This is related to supporting interlaced fields in CAMIF. Presently CAMIF support only progressive mode in CAMIF.                                                                                                                                                                                                               | Normal   | SPEAR1340        |            | 156723 |
|                      | Extra brightness seen in several resolutions                 | In following resolutions, extra brightness is observed<br>1. 640x360<br>2. 800x600<br>3. 800x360                                                                                                                                                                                                                                | Normal   | SPEAR1340        |            | 168208 |
| CAN                  | S320S_CPU: CAN skb buffer full issue                         | While testing CAN for multiple frame transmission at 5 KBPS, sometimes the skb buffer is full and the particular frame transmission gets delayed. This is observed when multiple frame transmission is done in multiple loops.                                                                                                  | Normal   | SPEAR320S        |            | 155976 |

Table 7. List of known issues (continued)

| Category / Component | Summary                                                                                 | Description                                                                                                                                                                                                                                                                               | Severity | Relevant targets | Workaround | ID     |
|----------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------|------------|--------|
| CAN                  | Issue with bitrate > 125 kHz                                                            | CAN interface is not working consistently at the bitrate > 125000 (125KHz) when loopback is off.<br>When loopback is on, its working fine till 1MHz. This should be because there is no significant propagation delay of the signal as its traversing from Tx to Rx pad of CAN on the SoC | Normal   | SPEAr320S        |            | 164759 |
| CAN                  | CAN echo off mode not working                                                           | In echo off mode data output from CAN is not correct                                                                                                                                                                                                                                      | Normal   | SPEAr320S        |            | 164757 |
| CEC                  | CEC not able to communicate with external device                                        | CEC unable to communicate with external devices. Only tested in loop-back case.                                                                                                                                                                                                           | Plus     | SPEAr1340        |            | 159097 |
| Compact Flash        | CF cards not detected [SPEAr1310-C]                                                     | CF cards are not detected                                                                                                                                                                                                                                                                 | Plus     | SPEAr1310-C      |            | 171271 |
| Compilation          | Linux kernel compilation displays warning messages                                      | Compiling Linux-2.6 kernel displays many warning messages. Although most warnings are related to unused variables, they were not displayed in previous LSP releases.                                                                                                                      | Plus     | All              |            | 157369 |
| Ethernet             | NFS server goes down when stressing NFS@10 full [mailto:NFS@10full] or 10 half on SMII2 | TCP-Tx performance is low at 10 full/half for SMII-2 which is probably causing NFS to go down while running tests on SMII2.                                                                                                                                                               | Minor    | SPEAr310         |            | 90395  |
| Ethernet             | FTP not working on SMII1,2,3,4 for 10/half, 10/full [SPEAr310]                          | FTP operation fail for configuration 10/full, 10/half on all SMII interface of EVALSPEAR310 board. Only ping command works.                                                                                                                                                               | Minor    | SPEAr310         |            | 90942  |

Table 7. List of known issues (continued)

| Category / Component | Summary                                          | Description                                                                                                                                                                                                                                                                                                                                            | Severity | Relevant targets                   | Workaround | ID     |
|----------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------|------------|--------|
| Ethernet             | Configuring unused SMII results in junk messages | Configuring the SMII0 which is not connected via Ethernet cable results in junk messages. Configuration is done using the ethtool. See the log below:<br># ./ethtool.dat -s eth0 autoneg off duplex full speed 100 #<br>./ethtool.dat eth0<br># # # Trying 100/HALF Trying 10/FULL Trying 10/HALF Trying 10/HALF                                       | Minor    | SPEAR310                           |            | 92208  |
| Ethernet             | Ethernet performance for 1000/full is very low   | We get much less performance on 1000/full configuration using netperf. Performance results are given below:<br>– For SPEAr1310, SPEAr1340 TCP Tx Perf TCP RX perf 1000/FULL 200.71 Mbps 345.65 Mbps<br>– UDP Tx Perf UDP Rx perf 1000/full 301.04 Mbps 799.64 Mbps<br>– For SPEAr600: TCP-Tx - 72.47 TCP-Rx - 57.17<br>– UDP-Tx - 211.42 UDP-Rx - 3.53 | Plus     | SPEAr1340, SPEAr1310-C<br>SPEAr600 |            | 102682 |

Table 7. List of known issues (continued)

| Category / Component | Summary                                           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Severity | Relevant targets | Workaround | ID         |    |        |            |        |   |           |       |       |           |        |   |           |       |       |           |        |   |          |      |     |          |       |   |          |      |      |          |       |   |        |                        |                           |        |
|----------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------|------------|------------|----|--------|------------|--------|---|-----------|-------|-------|-----------|--------|---|-----------|-------|-------|-----------|--------|---|----------|------|-----|----------|-------|---|----------|------|------|----------|-------|---|--------|------------------------|---------------------------|--------|
| Ethernet             | TX performance test for MTU 9000 results in error | <div>At 1000-F unable to take TCP-Tx performance (hangs and need to press control c). At speeds below 1000 we can take TCP Tx/Rx performances. UDP-Rx performance for all speed/duplex settings is zero. Note: All performances are measured using netperf/netserver Listing out performance at 9000 MTU.</div> <table><thead><tr><th></th><th>Tx</th><th>Rx</th></tr></thead><tbody><tr><td>1000-F TCP</td><td>NA</td><td>650.21</td></tr><tr><td>1000-F UDP</td><td>775.44</td><td>0</td></tr><tr><td>100-F TCP</td><td>99.13</td><td>99.10</td></tr><tr><td>100-F UDP</td><td>100.13</td><td>0</td></tr><tr><td>100-H TCP</td><td>91.36</td><td>96.58</td></tr><tr><td>100-H UDP</td><td>100.12</td><td>0</td></tr><tr><td>10-F TCP</td><td>9.86</td><td>9.9</td></tr><tr><td>10-F UDP</td><td>10.71</td><td>0</td></tr><tr><td>10-H TCP</td><td>9.58</td><td>9.46</td></tr><tr><td>10-H UDP</td><td>10.71</td><td>0</td></tr></tbody></table> |          | Tx               | Rx         | 1000-F TCP | NA | 650.21 | 1000-F UDP | 775.44 | 0 | 100-F TCP | 99.13 | 99.10 | 100-F UDP | 100.13 | 0 | 100-H TCP | 91.36 | 96.58 | 100-H UDP | 100.12 | 0 | 10-F TCP | 9.86 | 9.9 | 10-F UDP | 10.71 | 0 | 10-H TCP | 9.58 | 9.46 | 10-H UDP | 10.71 | 0 | Normal | SPEAR1310-C, SPEAr1340 | Supported only up to 8192 | 111097 |
|                      | Tx                                                | Rx                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |                  |            |            |    |        |            |        |   |           |       |       |           |        |   |           |       |       |           |        |   |          |      |     |          |       |   |          |      |      |          |       |   |        |                        |                           |        |
| 1000-F TCP           | NA                                                | 650.21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |                  |            |            |    |        |            |        |   |           |       |       |           |        |   |           |       |       |           |        |   |          |      |     |          |       |   |          |      |      |          |       |   |        |                        |                           |        |
| 1000-F UDP           | 775.44                                            | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |                  |            |            |    |        |            |        |   |           |       |       |           |        |   |           |       |       |           |        |   |          |      |     |          |       |   |          |      |      |          |       |   |        |                        |                           |        |
| 100-F TCP            | 99.13                                             | 99.10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |          |                  |            |            |    |        |            |        |   |           |       |       |           |        |   |           |       |       |           |        |   |          |      |     |          |       |   |          |      |      |          |       |   |        |                        |                           |        |
| 100-F UDP            | 100.13                                            | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |                  |            |            |    |        |            |        |   |           |       |       |           |        |   |           |       |       |           |        |   |          |      |     |          |       |   |          |      |      |          |       |   |        |                        |                           |        |
| 100-H TCP            | 91.36                                             | 96.58                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |          |                  |            |            |    |        |            |        |   |           |       |       |           |        |   |           |       |       |           |        |   |          |      |     |          |       |   |          |      |      |          |       |   |        |                        |                           |        |
| 100-H UDP            | 100.12                                            | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |                  |            |            |    |        |            |        |   |           |       |       |           |        |   |           |       |       |           |        |   |          |      |     |          |       |   |          |      |      |          |       |   |        |                        |                           |        |
| 10-F TCP             | 9.86                                              | 9.9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |                  |            |            |    |        |            |        |   |           |       |       |           |        |   |           |       |       |           |        |   |          |      |     |          |       |   |          |      |      |          |       |   |        |                        |                           |        |
| 10-F UDP             | 10.71                                             | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |                  |            |            |    |        |            |        |   |           |       |       |           |        |   |           |       |       |           |        |   |          |      |     |          |       |   |          |      |      |          |       |   |        |                        |                           |        |
| 10-H TCP             | 9.58                                              | 9.46                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                  |            |            |    |        |            |        |   |           |       |       |           |        |   |           |       |       |           |        |   |          |      |     |          |       |   |          |      |      |          |       |   |        |                        |                           |        |
| 10-H UDP             | 10.71                                             | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |                  |            |            |    |        |            |        |   |           |       |       |           |        |   |           |       |       |           |        |   |          |      |     |          |       |   |          |      |      |          |       |   |        |                        |                           |        |



Table 7. List of known issues (continued)

| Category / Component | Summary                            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Severity | Relevant targets       | Workaround | ID     |
|----------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------|------------|--------|
| Ethernet             | NFS going up and down under stress | <p>NFS is going up and down while running stress. Following tests were executed concurrently</p> <ol style="list-style-type: none"> <li>1) Two instances of memtester (64 MB each) executing 100 loops</li> <li>2) Infinite DMA memory to memory copy on all 16 channels. Data compared with that copied</li> <li>3) One instance of netperf/netserv with netserver running on SPEAr board and netperf on Linux machine</li> <li>4) Two instances of netperf/netserv executing on SPEAr board in loopback mode</li> <li>5) Continuous display on CLCD with pattern continuously changing</li> <li>6) Continuous copy of large file from Ethernet to USB pen drive attached on one of USB host ports (alternate copy in both directions)</li> <li>7) Continuous copy of large file from Ethernet to USB pen drive attached on PCI to USB host converter on one of PCI host port (alternate copy in both directions)</li> </ol> | Plus     | SPEAr1310-C, SPEAr1340 |            | 123761 |

Table 7. List of known issues (continued)

| Category / Component | Summary                                                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                            | Severity | Relevant targets       | Workaround | ID     |
|----------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------|------------|--------|
| Ethernet             | SPEAr1300/10 Ethernet linkup fails for autoneg off on host side | <ul style="list-style-type: none"> <li>– Ethernet link up fails if host side autoneg is set to off.</li> <li>– If board boots with autoneg on, on host side, then autoneg is set to on, Ethernet links down again.</li> <li>– With autoneg on at host side, no such issue is found. Setting autoneg off on host side (before or after booting the board) leads to Ethernet link down. This is observed with EVALSP1300 and SP1310-C boards.</li> </ul> | Normal   | SPEAr1340, SPEAr1310-C |            | 150232 |
| Ethernet             | Random failures of NFS at multiple boot                         | Ethernet sometimes fails at multiple reboots                                                                                                                                                                                                                                                                                                                                                                                                           | Minor    | SPEAr1340              | NA         | 152249 |
| Ethernet             | SMII interfaces not working                                     | <ul style="list-style-type: none"> <li>– S310. Only 2 SMII out of four work (SMII2 &amp; SMII3 on some boards, SMII1 and SMII2 on others) but SMII4 is not working. Seems to be hardware issue as link LED is not glowing.</li> <li>– S1310. 2 SMII and 1 RMII interface. Only SMII interface is working. RMII does not work on any board</li> </ul>                                                                                                   | Normal   | SPEAr310, SPEAr1310-C  |            | 146315 |
| Ethernet             | Performance issue and MTU size issue [SPEAr320S]                | <p>Following issues on performance on eth2 of S320S.</p> <ul style="list-style-type: none"> <li>– Performance taken only at 100-F &amp; 100-H</li> <li>– Cannot change the MTU sizes.</li> <li>– TCP performance at Tx with 100-F/H is too low at about 10.84</li> </ul>                                                                                                                                                                               | Normal   | SPEAr320S              |            | 154305 |

Table 7. List of known issues (continued)

| Category / Component | Summary                                                                                          | Description                                                                                                                                                        | Severity | Relevant targets                        | Workaround                                                                   | ID     |
|----------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------------------|------------------------------------------------------------------------------|--------|
| Ethernet             | MAC address from uboot not set to MACB [SPEAr320S]                                               | Random MAC address was being written to MACB registers. MAC address passed from uboot was not set to MACB.                                                         | Normal   | SPEAr320S                               | Separate patch is available to fix this issue (see <a href="#">Table 3</a> ) | 176821 |
| I2C                  | I2C designware timeout error                                                                     | I2C timeout occurs with some I2C devices like gyroscope. This can occur with other devices too. This error continues in Linux boot log if board is rebooted again. | Plus     | SPEAr1310-C, SPEAr1340                  | NA                                                                           | 130517 |
| I2S                  | With aplay command ALSA -l lists capture devices too                                             | Aplay -l should list only playback devices. Current implementation lists capture devices too in aplay -l.                                                          | Normal   | SPEAr1340                               | This affects the listing only. Functionality not effected.                   | 149669 |
| I2S                  | Humming noise is heard at high volume                                                            | Noise is heard in audio at high volume                                                                                                                             | Normal   | SPEAr1340                               |                                                                              | 149947 |
| I2S                  | I2S kill gives I2C timeout msg [SPEAr1310-C]                                                     | Killing running I2S with Control + C or with kill command gives timeout messages from I2S. After such messages board need to be rebooted                           | Normal   | SPEAr1310-C                             | Separate patch is available to fix this issue (see <a href="#">Table 3</a> ) | 169720 |
| JPEG                 | JPEGCORE not able to encode the YUV data of JPEG image with varied luminance & chrominance value | Not able to encode YUV data for JPEG images that have varied luminance & chrominance part.                                                                         | Normal   | SPEAr300, SPEAr310, SPEAr320S, SPEAr600 |                                                                              | 92722  |

Table 7. List of known issues (continued)

| Category / Component | Summary                             | Description                                                                                                                                                                                                                                                                                                                                                                                                              | Severity | Relevant targets          | Workaround | ID     |
|----------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------------------|------------|--------|
| JPEG                 | JPEG tests failing [SPEAR1310-C]    | JPEG tests on SPEAr1310-C SoC are failing. Error messages:<br>jpeg-designware: write: sleep timeout. exiting. jpeg-designware<br>jpeg-designware: read: sleep timeout. exiting. jpeg-designware<br>jpeg-designware: jpeg aborted. error no. -62 Error Encountered while jpeg-designware jpeg-designware: jpeg aborted. error no. -62 Reading -1 Error Encountered while writing -1 write failed unmapping read/write buf | Normal   | SPEAR1310-C               |            | 167316 |
| Kernel               | HDMI + Camera TX Linux              | Kernel sometimes crashes/hangs when connecting HDMI and Camera together. It seems DDR is not stable with both Camera and HDMI connected                                                                                                                                                                                                                                                                                  | Plus     | SPEAR1340                 |            | 168823 |
| OTG                  | USB OTG: USB-CV tests failing       | All tests except OTG Descriptor Test - Device Configured/ Device Addressed are failing.                                                                                                                                                                                                                                                                                                                                  | Normal   | SPEAR1310-C,<br>SPEAR1340 |            | 169824 |
| OTG                  | USB to Ethernet Adaptor not working | USB to Ethernet Adaptor not working on OTG port, while its working on USB Host port                                                                                                                                                                                                                                                                                                                                      | Normal   | SPEAR1310-C,<br>SPEAR1340 |            | 173933 |
| OTG                  | USB OTG: Remote Wake Up failing     | Remote Wake up is not working                                                                                                                                                                                                                                                                                                                                                                                            | Normal   | SPEAR1310-C,<br>SPEAR1340 |            | 169824 |

Table 7. List of known issues (continued)

| Category / Component | Summary                                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Severity | Relevant targets       | Workaround | ID     |
|----------------------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------|------------|--------|
| OTG                  | USB OTG: USB to Ethernet Card not working | <p>Ethernet D-link is not working with OTG, but it is working with USB Host.</p> <p>Following error is generated thrown while Ping PING 192.168.1.1 (192.168.1.1) 56(84) bytes of data. asix 1-1:1.0: eth1: asix_rx_fixup() Bad Header Length asix 1-1:1.0: eth1: asix_rx_fixup() Bad RX Length 65475 asix 1-1:1.0: eth1: asix_rx_fixup() Bad Header Length asix 1-1:1.0: eth1: asix_rx_fixup() Bad RX Length 65475 asix 1-1:1.0: eth1: asix_rx_fixup() Bad Header Length asix 1-1:1.0: eth1: asix_rx_fixup() Bad RX Length 65475 From 192.168.1.10 icmp_seq=1 Des192.168.1.10 icmp_seq=2 Destination Host Unreachable</p> | Normal   | SPEAr1310-C, SPEAr1340 |            | 168225 |
| OTG                  | USB OTG: Bus powered hub not working      | <p>Bus powered hub not working with OTG board. Detailed analysis is as below</p> <p>SPEAr1340: Both 1.0 and 2.0 ports working when self powered. When 1.0 port is connected as bus powered, the hub is detected, but we get over-current message when pendrive is attached. When 2.0 port is connected as bus powered the hub is not detected.</p> <p>SPEAr1310-C: Both 1.0 and 2.0 ports working when self powered. When 1.0 port is connected as bus powered, the hub is detected, pendrives also work properly when attached. When 2.0 port is connected as bus powered the hub is not detected.</p>                    | Plus     | SPEAr1310-C, SPEAr1340 |            | 169825 |

Table 7. List of known issues (continued)

| Category / Component          | Summary                                                                           | Description                                                                                                                                                                                      | Severity | Relevant targets       | Workaround                                                                                                                                                                | ID     |
|-------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| PCIE                          | PCIE to SATA card (sil24) does not work                                           | If PCIE to SATA card (sil24) is connected, Linux kernel crashes                                                                                                                                  | Minor    | SPEAR1340              | This does not work with CPU frequency of 600 MHz. Lower CPU frequency is fine. Card works properly if some delay is inserted in sil24 driver after sil24 controller init. | 151578 |
| PCIE                          | NFS not coming UP from PCIe Ethernet card                                         | Trying to mount NFS over PCIe causes kernel crash. If MSI is disabled, we can mount NFS over PCIe. Temporary workaround is to pass pci=noms in bootargs.                                         | Plus     | SPEAR1310-C, SPEAR1340 |                                                                                                                                                                           | 110231 |
| Power Management              | Ethernet Link setting switches to maximum supported after wakeup                  | On wakeup after suspend, the Ethernet link switches to maximum supported speed. (autoneg is kept off). E.g. if the link speed is 100-Full before suspend, it switches to 1000-Full after wakeup. | Plus     | SPEAR1340              |                                                                                                                                                                           | 171523 |
| Power Management              | Board does not wake up from suspend via UART even when no_console_suspend is used | Use no_console_suspend in bootargs. After suspending (S2R), press any key on host PC, as it connected to SoC via UART port. Expected behavior: Board should wakeup.                              | Plus     | SPEAR320S              |                                                                                                                                                                           | 170948 |
| Power Management: Hibernation | Error message of CPU stall on hibernation                                         | On putting system into hibernation following error messages are obtained:<br>INFO: rcu_sched_state detected stall on CPU0 (t=6000 jiffies)                                                       | Normal   | SPEAR1340, SPEAR1310-C | Error message displays but system goes into hibernation and wakes properly                                                                                                | 150564 |

Table 7. List of known issues (continued)

| Category / Component             | Summary                                                            | Description                                                                                                                                                                                                                                                                                                                                                                                                                   | Severity | Relevant targets       | Workaround                            | ID     |
|----------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------|---------------------------------------|--------|
| Power Management: Suspend to RAM | Random errors from SMI if system is suspended to RAM               | Error from SMI controller if system is suspended to RAM and then woken up in loop along with heavy access of NOR connected on SMI controller.                                                                                                                                                                                                                                                                                 | Minor    | SPEAR1340, SPEAR1310-C | This random bug does not occur always | 150671 |
| Power Management                 | USB Host: USB node for touchscreen is changed after suspend to RAM | Touchscreen creates an input node, say /dev/input/event1. After suspend to RAM sometimes this node is not created sometimes a node with different name is created. This happens because the device gets re-enumerated.                                                                                                                                                                                                        | Normal   | SPEAR1340              |                                       | 168691 |
| Power Management: OTG            | Board does not wakeup from S2R if device connected over OTG port   | SoC does not wakeup from suspend to RAM when the OTG is powered on (either as Host or device) It works fine if standby is used as the wakeup source.                                                                                                                                                                                                                                                                          | Normal   | SPEAR 1340             |                                       | 169831 |
| Power Management: OTG            | Port does not enumerate as device after wakeup from standby mode   | Attach OTG cable between OTG port of SoC and USB-Host port of SoC, which makes the OTG port be enumerated as device. Now wakeup the device from standby, it stops enumerating the OTG port as device. On once again sending the board to standby and bringing it up again, the port will get detected. This will keep repeating in the same manner. Same behavior observed between OTG port of SoC and Host port of linux PC. | Normal   | SPEAR1340              |                                       | 169873 |
| PWM                              | PWM period cannot be configured for more than 2 seconds            | Standard PWM header file [include/linux/pwm.h] takes duty and period as integer, and can support up to 4 sec. The PWM IP supports periods up to 12 sec. This is not configurable using Linux.                                                                                                                                                                                                                                 | Normal   | SPEAR320S              |                                       | 81163  |

Table 7. List of known issues (continued)

| Category / Component | Summary                                                                                           | Description                                                                                                                                           | Severity | Relevant targets                            | Workaround                                                                                                                     | ID     |
|----------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------|
| SD/MMC               | Several kernel standard tests fail                                                                | Several standard MMC tests fail (test 15 and test 17), though normal file operations and iozone tests pass. Both the tests correspond to error cases. | Minor    | SPEAR300, SPEAr320S, SPEAr1310-C, SPEAr1340 | Normal functionality is not affected                                                                                           | 103988 |
| SD/MMC               | SD card not detected [SPEAR1310-C]                                                                | SD cards are not detected on SPEAr1310-C board.                                                                                                       | Plus     | SPEAR1310-C                                 |                                                                                                                                | 167488 |
| SD/MMC               | Several SD cards are failing initialization                                                       | Some cards (MMC Mobile + Reduced Size) from Kingmax and DNA Gold fail to initialize.                                                                  | Plus     | SPEAR1340                                   |                                                                                                                                | 167623 |
| SD/MMC               | Inaccurate clock programmed by Linux                                                              | Clock programmed for SD is not accurate. (e.g. 57 MHz instead of 48 MHz). Debug information shows wrong value of clock.                               | Plus     | SPEAR1340                                   | Though the clock value is wrong but cards are working. Separate patch is available for this fix (see <a href="#">Table 3</a> ) | 171683 |
| SPDIF/I2S            | aplay -L listing not correct                                                                      | Current listing shows only card information. No information about play back device i2s and SPDIF.                                                     | Plus     | SPEAR1340                                   | ALSA library should have proper name of device in configuration files. This is not present but does not affect functionality.  | 149665 |
| SPDIF                | SPDIF: IN: SPDIF does not exit on record even after duration of OFF (sampling frequency is 8000). | SPDIF does not exit on record even after duration of OFF. With Creative Sound Blaster, record file size does not increase.                            | Normal   | SPEAR1340                                   |                                                                                                                                | 157368 |



Table 7. List of known issues (continued)

| Category / Component | Summary                                                                              | Description                                                                                                                                                                                                        | Severity | Relevant targets              | Workaround | ID     |
|----------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------------------|------------|--------|
| SPDIF                | SPDIF: IN: Record failing from Creative device                                       | Recording on SPDIF does not work with external device (Creative USB Sound Blaster).                                                                                                                                | Plus     | SPEAR1340                     |            | 157838 |
| SPDIF                | SPDIF: OUT: First few words are missing                                              | When SPDIF mono standard OS files are played (Rear_Left.wav or Front_Left.wav), the first word Front is not heard properly. This always happens when audio is played.                                              | Plus     | SPEAR1340                     |            | 157839 |
| UART                 | RAS UART fails with large data transfers                                             | RAS UART: Fail in DMA mode when transfer is in multiples of 200 bytes                                                                                                                                              | Minor    | SPEAR320S                     |            | 145738 |
| USB host             | USB speed issue at different ports devices [SPEAR300/ SPEAr320S]                     | Inserting pen drive on S300/320S boards, on minicom provides following speeds for both USB ports:<br>Upper port: Full speed Lower port: High speed. Both ports should be enumerated as high speed.                 | Plus     | SPEAR300, SPEAr310, SPEAr320S |            | 157631 |
| USB Host             | Low Speed/Full Speed devices are not detected (also disables the port) [SPEAR1310-C] | Full speed and Low speed devices are not recognized on SPEAr1310-C. USB port is even disabled. After removing low or full speed device and attaching high speed device, still will not work. Board requires reset. | Plus     | SPEAR1310-C                   |            | 169491 |
| USB utils            | Flashing utility with USB hub between PC and SPEAr                                   | When Flashing the EVALSP1340CPU board with USB hub as the interface, the Flasher displays error message: "Firmware could not be uploaded. Restart the board and try again."                                        | Normal   | SPEAR1340                     |            | 157943 |

Table 7. List of known issues (continued)

| Category / Component | Summary                                                                    | Description                                                                                                                                                                          | Severity | Relevant targets                                                | Workaround                                      | ID     |
|----------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------------------------------------------|-------------------------------------------------|--------|
| USB device           | USB device: interrupt end-point is not working                             | Interrupt end-point for USB device is not working. Although the device is enumerated properly, data transferred is wrong (always zero). Same behavior for both High/Full speed mode. | Normal   | SPEAR320S                                                       | Device with single configuration works properly | 169072 |
| U-Boot               | <i>USB start</i> fails after a <i>USB stop</i> in U-Boot                   | This is a limitation of U-Boot which does not support reset of USB                                                                                                                   | Minor    | SPEAR300, SPEAR310, SPEAR320S, SPEAR600, SPEAR1310-C, SPEAR1340 |                                                 | 114777 |
| U-Boot               | Serial NOR Flash and parallel NOR Flash can not be accessed simultaneously | Not able to use the serial and parallel NOR Flash from U-boot. This is also the root cause for USB utility not supporting the parallel NOR Flashing.                                 | Plus     | SPEAR310                                                        |                                                 | 82695  |
| U-Boot               | imls does not show if rootfs is present on NOR                             | Running imls command on U-Boot prompt provides no information about rootfs                                                                                                           | Normal   | SPEAR300, SPEAR310, SPEAR320S, SPEAR600, SPEAR1310-C, SPEAR1340 |                                                 | 141247 |

Table 7. List of known issues (continued)

| Category / Component | Summary                                                        | Description                                                                                                                                                                                                                                                                                                                                                   | Severity | Relevant targets                                                | Workaround                                                                   | ID     |
|----------------------|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------------------------------------------|------------------------------------------------------------------------------|--------|
| U-Boot               | Failing to detect devices at U-Boot on full speed USB port     | While trying to boot from USB device at U-Boot level, it fails to identify any storage devices on full speed USB port.<br>Restart USB... USB: Register 2112 NbrPorts 2 USB EHCI 1.00 scanning bus for devices... cannot reset port 2!? 1 USB Device(s) found scanning bus for storage devices... 0 Storage Device(s) found<br>But detects on high speed port. | Normal   | SPEAR300, SPEAR310, SPEAR320S, SPEAR600, SPEAR1310-C, SPEAR1340 | This is limitation of U-Boot, which does not support OHCI                    | 168529 |
| Video encoder        | Debug messages in video encoder driver not working [SPEAR1340] | Enabling debug messages in SPEAR1340 video encoder driver was not working due to a wrong #define                                                                                                                                                                                                                                                              | Normal   | SPEAR1340                                                       | Separate patch is available to fix this issue (see <a href="#">Table 3</a> ) | 178675 |

## 10 Limitations

The following table reports known limitations related to this LSP version. Note that some limitations reported at software level can actually be caused by hardware constraints.

**Table 8. List of known limitations**

| Category / component              | Summary                                                                                                                        | Severity | Targets     |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------|----------|-------------|
| ADC                               | DMA mode of ADC is not working due to hardware limitation                                                                      | Plus     | SPEAr300    |
| Camera                            | Cam-0, cam-1, cam-2 not tested as they are unavailable on evaluation board                                                     | Minor    | SPEAr1340   |
| CAN                               | Not tested in current release as it is unavailable on 1300 base expansion board.                                               | Minor    | SPEAr1310-C |
| SD/MMC                            | Many SD/MMC card don't work due to timing issues on board                                                                      | Plus     | SPEAr300    |
| Ethernet (SMII) 1 and 4           | Not tested due to board issue                                                                                                  | Minor    | SPEAr310    |
| Ethernet (GMAC-1, SMII 1/2, RMII) | Not tested in current release as it is unavailable on 1300 base expansion board.                                               | Minor    | SPEAr1310-C |
| HDLC/TDM                          | Not tested in current release as it is unavailable on 1300 base expansion board.                                               | Minor    | SPEAr1310-C |
| I2C                               | Controllers i2c-1 to i2c-8 not tested in current release as they are unavailable on 1300 base expansion board.                 | Minor    | SPEAr1310-C |
| I2C                               | Controllers i2c-1 and i2c-2 not tested in current release as they are unavailable on SPEAr320SCPU board and application boards | Minor    | SPEAr320S   |
| PNOR                              | Not tested in current release as it is unavailable on 1300 base expansion board.                                               | Minor    | SPEAr1310-C |
| PCIE                              | Controllers pcie-1 to pcie-3 not tested in current release as they are unavailable on evaluation board.                        | Minor    | SPEAr1310-C |
| PCIe                              | Not tested as it is muxed with SATA via MiPHY. Needs hardware changes to test                                                  | Minor    | SPEAr1340   |
| Power Management: GPIO            | GPIO does not work after Suspend to RAM. This is also due to hardware issue. This effects IP's using GPIO e.g. SPI             | Plus     | Spear1310   |
| RS485                             | Due to board issue RS485-2 is not working.                                                                                     | Normal   | SPEAr310    |
| RTC                               | RTC does not increment time under battery only condition                                                                       | High     | SPEAr1340   |

**Table 8. List of known limitations**

| Category / component | Summary                                                                                                         | Severity | Targets     |
|----------------------|-----------------------------------------------------------------------------------------------------------------|----------|-------------|
| SATA                 | Controllers SATA-1 to SATA-3 not tested in current release as they are unavailable on evaluation board.         | Minor    | SPEAr1310-C |
| SSP                  | Not tested in current release as it is unavailable on SP1300 base expansion board.                              | Minor    | SPEAr1310-C |
| SSP                  | Controllers ssp-1 and ssp-2 not tested in current release as they are unavailable on evaluation board.          | Minor    | SPEAr320S   |
| UART                 | UART-1 not tested as it is muxed with DDR clock enable and reset.                                               | Minor    | SPEAr1340   |
| UART                 | Controllers UART-1 to UART-6 not tested in current release as it is unavailable on SP1300 base expansion board. | Minor    | SPEAr1310-C |
| UART                 | Controllers UART-3 to UART-7 not tested in current release as they are unavailable on the evaluation board.     | Minor    | SPEAr320S   |

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## 12 Revision history

**Table 9. Document revision history**

| Date        | Revision | Changes          |
|-------------|----------|------------------|
| 18-Sep-2012 | 1        | Initial release. |

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