SMP and Networking support on NuttX/LC823450

Masayuki Ishikawa & Koichi Okamoto / Sony Video & Sound Products Inc.

What is demonstrated
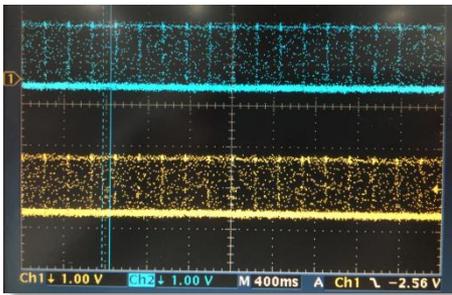

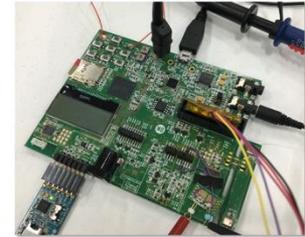HTTP audio (PCM/44.1k/stereo) streaming is working on NuttX/LC823450 in SMP mode.

What was improved

Running SMP kernel on lc823450-xgevk

SONY

- Port existing drivers to the latest NuttX
  - UART, Timer, GPIO, DMA, I2C, SPI, LCD
  - eMMC (including boot), SD, USB, LED, Audio, ADC
- Implement SMP related code
  - lc823450_cpuidlestack.c, lc823450_cpuindex.c
  - lc823450_cpupause.c, lc823450_cpustart.c, lc823450_testset.c (Use H/W Mutex instead of ldex, strex)
- Improve performance
  - Introduce spin_lock_irqsave(), spin_unlock_irqrstore()
  - Use these APIs inside the driver code.
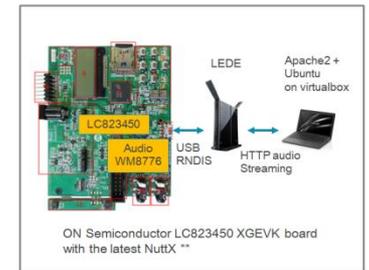 - Up to 20% performance improvement

lc823450-xgevk board

HTTP audio streaming support

SONY

- Fix RNDIS driver for NuttX
  - Fix data corruption
  - Add USB high speed mode support
- Modify tcp_send.c to support receive window control.
  - Still experimental
- Modify nxplayer to support HTTP connection.
  - Currently only WAV format is supported.
- Still testing with SMP kernel

ON Semiconductor LC823450 XGEVK board with the latest NuttX **

**Code is available at bitbucket.org/nuttx/nuttx   22

Hardware Information

ON Semiconductor LC823450 Dual Cortex-M3 160MHz

Source code or detail technical information availability

The code is available at bitbucket.org/nuttx

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