CHANGES TO ORIGINAL WHITECAT's LUA-RTOS-ESP32

IMPLEMENTATION

File systems:

FAT-sdcard

- removed the complete implementation and replaced with driver based on *esp-idf* `sdmmc` driver
- sdcard can be connected in 1-bit or 4-bit mode
- os.mountfat() & os.unmountfat() functions provided to mount sdcard if inserted after boot or change the card

SPIFFS

- removed the complete implementation and replaced with slightly different one
- spiffs source files are unchanged original files prom *pellepl's* repository
- added timestamp to files/directories
- mkspiffs sets files/directories timestamp
- formating spiffs on startup does not reset the system

Deleted files/directories:
```
components/fat DIR
components/spiffs DIR
components/mkspiffs/src/spiffs DIR
components/luartos/vfs/fat.c
components/luartos/vfs/spiffs.c
components/main/patches/dirent.patch
```

Added files/directiries:
```
components/spiffs DIR
components/mkspiffs/src/spiffs DIR
components/main/patches/ffconf.h
components/main/patches/ccsbcs.c
components/luartos/vfs/fat.c
components/luartos/vfs/fat.h
components/luartos/vfs/spiffs.c
```

Changed files/directiries:
```
MAKEFILE
components/luartos/Kconfig
components/luartos/luartos.h
components/luartos/Lua/modules/loslib_adds.inc
```

```
components/luartos/Lua/src/loslib.c
components/luartos/syscalls/chdir.c
components/luartos/sys/driver.h
components/luartos/sys/sys_init.c
components/luartos/ld/lua_rtos.ld
components/mkspiffs/src/main.cpp
```

ESPI DRIVER:

- NEW espi driver implemented, based on *esp-idf* `spi_master` driver
- Queued/DMA & direct/nonDMA transfers combined
- includes special support for display functions

Deleted files/directories:
 components/lua_rtos/drivers/espi.h
 components/lua_rtos/drivers/espi.c

Added files/directiries:
 components/lua_rtos/drivers/espi.h
 components/lua_rtos/drivers/espi.c

io module:

- added support for ymodem file transfer (io.ymsend & io.ymreceive functions)
- attributes functions returns file/directors type, size and timestamp

Added files/directiries:
```
components/luartos/Lua/common/ymodem.c
components/luartos/Lua/common/ymodem.h
```

Changed files/directiries:
```
components/luartos/sys/status.h
components/luartos/Lua/modules/liolib_adds.inc
components/luartos/Lua/src/liolib.c
components/luartos/drivers/uart.c
```

os module:

- added function os.exists() for checking file existence
- added calibration for sleep function
- datetime preserved after sleep
- bootreason: added text boot reason description
- added sleepcalib() function to calibrate sleep time

- added os.list() function
  - ◆ enhanced os.ls():
  - ◆ lists file timestamps (sfpiffs & fat),
  - ◆ free and total drive space, number of files in directory,
  - ◆ match files by wildchard
- os.resetreason() returns reset reason as numeric and string (descriptive) values
- added os.mountfat() & os.unmountfat() functions
- added os.compile() function to compile lua source file to lua bytecode. Can also list the bytecode, useful for learning how Lua virtual machine works

Changed files/directiries:
```
components/luartos/sys/sys_init.c
components/luartos/drivers/cpu.c
components/luartos/drivers/cpu.h
components/luartos/Lua/modules/loslib_adds.inc
components/luartos/Lua/src/loslib.c
```

net.http module:

- start & stop functions renamed to serverstart & serverstop
- added http client functions get, post, postfile

Added files/directiries:
```
components/http/http_client.c
components/http/http_client.h
```

Changed files/directiries:
```
components/http/httpsrv.c
components/luartos/Lua/modules/net_service_http.inc
```

I2c module:

- added high level functions: send, receive, sendreceive

Changed files/directiries:
```
components/luartos/Lua/modules/i2c.c
```

spi module:

- Based on new espi driver
- added high level functions: send, receive, sendreceive
- added queued transfer mode functions: qsend, qreceive, qsendreceive
- Full duplex and half duplex transmission modes

    components/luartos/Lua/modules/spi.c

sensors:

- added config options do individually enable/disable DS1820 & BME280 sensors
- enhanced sensor list function
- support for BME280 temperature, humidity and pressure sensors in I2C mode

Added files/directiries:
    components/sensors/bme280.h

    components/sensors/bme280.c

Changed files/directiries:
    components/luartos/Kconfig

    components/luartos/drivers/sensor.h

    components/sensors/ds1820.c

    components/luartos/Lua/modules/sensor.c

cjson module:

- NEW module; Fast, standards compliant encoding/parsing routines
- Full support for JSON with UTF-8, including decoding surrogate pairs
- Optional run-time support for common exceptions to the JSON specification (infinity, NaN,..)
- No dependencies on other libraries

Added files/directiries:
    components/luartos/Lua/common/fpconv.c

    components/luartos/Lua/common/fpconv.h

    components/luartos/Lua/common/strbuf.c

    components/luartos/Lua/common/strbuf.h

    components/luartos/Lua/modules/lua_cjson.c

led module:

NEW module
- support for WS2812 - NeoPixel RGB leds

Changed files/directiries:
    components/luartos/Kconfig

    components/luartos/ld/lua_rtos.ld

Added files/directiries:
    components/luartos/drivers/ws2812.h

```
components/luartos/drivers/ws2812.c
components/luartos/Lua/modules/led.c
```

tft module:

- NEW module; uses new espi driver
- TFT module works with tft displays based on ILI9341 & ST7735 controllers (for now) in 4-bit SPI mode.
- Touch panel with XPT2046 controllers is also supported.
- Included graphics functions:
  putpixel, line, linebyangle, rect, roundrect, circle, ellipse, triangle,arc, poly, star
  All shapes can be filled or not. Drawing can be limitid to clipping window.
- Fonts:
  fixed width an proportional, 7 fonts embeded, unlimited number of fonts from file,
  7-segment vector font with variable width/height.
  Proportional fonts can be used in fixed width mode.
- String write function:
  on x,y possition, center, left/right/top/bottom justify
  Transparent or opaque writing, optional wrapping.
  Writting can be limitid to clipping window.
- Images: raw image, jpg & bmp formats supported, jpg image from camera supported
- Touch: gettouch, getrawtouch functions; Lua calibration program included
- Read from display memory functions

Deleted files/directories:
```
components/lua_rtos/Lua/modules/screen   DIR
```

Added files/directiries:
```
components/lua_rtos/Lua/modules/screen   DIR
components/lua_rtos/Lua/common/tjpgd.h
components/lua_rtos/Lua/common/tjpgd.c
```

Changed files/directiries:
```
components/luartos/Kconfig
components/luartos/lua_rtos/Lua/adds/luaconf.h
components/luartos/lua_rtos/Lua/modules/auxmods.h
```

cam module:

- NEW module; uses new espi driver
- support for Arducam-Mini-2MP camera module, uses SPI & I2C interfaces
- jpeg format supported, sizes 176x120 to 1600x1200
- capture to file or buffer

- capture directly to tft Display (tft.jpgimage(x,y,scale,"cam") function

Changed files/directiries:
```
components/luartos/Kconfig
```

Added files/directiries:
```
components/lua_rtos/Lua/modules/screen  DIR
components/lua_rtos/drivers/arducam.h
components/lua_rtos/drivers/arducam.c
components/lua_rtos/Lua/modules/cam.c
```

zlib library:

- NEW library
- used in http client
- Support for file compression planned

Added files/directiries:
```
components/zlib  DIR
```