NEON

Tags

- **NEON**
  http://stackoverflow.com/questions/tagged/neon
- **Intrinsics**
  http://stackoverflow.com/questions/tagged/intrinsics

ARM NEON Intrinsics

- **ARM NEON Development**
  http://www.add.ece.ufl.edu/4924/docs/arm/ARM%20NEON%20Development.pdf
- **SHA-3 on ARM11 processors**
  Peter Schwabe, Bo-Yin Yang, and Shang-Yi Yang
  http://eprint.iacr.org/2011/670.pdf
- **Using ARM Neon Intrinsics for Image Processing**
  http://engahmedsaleh.blogspot.sg/2013/03/using-arm-neon-intrinsics-for-image.html
- **Simple image processing, optimized for ARM NEON**
  http://mashandmish.wordpress.com/2012/01/05/simple-image-processing-optimized-for-arm-neon/

```
void ar_vnot_u8_neon(uint8_t* result, const uint8_t* original, uint32_t n) {
 uint8x16_t original_loaded;
 uint8x16_t result_loaded;
 for (uint32_t i = 0; i < n; i += 16) {
  original_loaded = vld1q_u8(&(original[i]));
  result_loaded = vmvnq_u8(original_loaded);
  vst1q_u8(&(result[i]),result_loaded);
 }
```

```
}
```

- **ARM NEON assembly optimized RGBA unmultiply functions v1**
  unmultiply-arm-neon-v1.tar.gz

- **[PATCH] audioconvert: add NEON acceleration for some conversions**
  http://comments.gmane.org/gmane.comp.video.gstreamer.embedded/454

- **Maximum optimization of element wise multiplication via ARM NEON assembly**
  http://stackoverflow.com/questions/12777483/maximum-optimization-of-element-wise-multiplication-via-arm-neon-assembly

- **ARM NEON Development**
  Ali Nuhi
  http://www.add.ece.ufl.edu/4924/docs/arm/ARM%20NEON%20Development.pdf

- **ARM Architecture & NEON**
  Ian Rickards
  http://www.stanford.edu/class/ee282/10_handouts/lect.10.arm_soc.pdf

- **Math-NEON**
  http://math-neon.googlecode.com/svn-history/r8/trunk/math_debug.c

- **Fast Gaussian Blur image filter with ARM NEON**
  http://stackoverflow.com/questions/17486025/fast-gaussian-blur-image-filter-with-arm-neon

- **Fast Gaussian blur on unsigned char image- ARM Neon Intrinsics- iOS Dev**
  http://stackoverflow.com/questions/9158818/fast-gaussian-blur-on-unsigned-char-image-arm-neon-intrinsics-ios-dev

- **Fast Pixel Count on Binary Image- ARM neon intrinsics - iOS Dev**
  http://stackoverflow.com/questions/8887118/fast-pixel-count-on-binary-image-arm-neon-intrinsics-ios-dev

- **Fast Image square on (int) Image- ARM neon intrinsics - iOS Dev**
  http://stackoverflow.com/questions/8887419/fast-image-square-on-int-image-arm-neon-intrinsics-ios-dev/8887500

- **Reverse vector order in ARM NEON intrinsics**
  http://stackoverflow.com/questions/18760784/reverse-vector-order-in-arm-neon-intrinsics

- **Improve code with Neon iOS**
  http://stackoverflow.com/questions/8473537/improve-code-with-neon-ios/8474811

- **Converting between SSE and NEON Intrinsics-Shuffling**
  http://stackoverflow.com/questions/7962141/converting-between-sse-and-neon-intrinsics-shuffling?rq=1

  You just need to use vtbl2_u8 twice, splitting the input and joining the output appropriately:

  ```
  #define uint8x16_to_8x8x2(v) ((uint8x8x2_t) { vget_low_u8(v), vget_high_u8(v) })

  uint8x16_t a = { 0x00, 0x11, 0x22, 0x33, 0x44, 0x55, 0x66, 0x77, 0x88, 0x99, 0xaa, 0xbb, 0xcc, 0xdd, 0xee, 0xff };
  uint8x16_t b = { 0x80, 0x0f, 0x01, 0x0e, 0x02, 0x0d, 0x03, 0x0c, 0x04, 0x0b, 0x05, 0x0a, 0x06, 0x09, 0x07, 0x08 };
  uint8x16_t c = vcombine_u8(vtbl2_u8(uint8x16_to_8x8x2(a), vget_low_u8(b)), vtbl2_u8(uint8x16_to_8x8x2(a), vget_high_u8(b)));
  // c = 00 ff 11 ee 22 dd 33 cc 44 bb 55 aa 66 99 77 88
  ```

- **An Efficient NEON-based Quarter-pel Interpolation Method for HEVC**
  http://www.apsipa.org/proceedings_2012/papers/198.pdf

- **ARM NEON ... Why You Should Care**
  http://elinux.org/images/4/40/Elc2011_anderson_arm.pdf

- **Resize 8-bit image by 2 with ARM NEON**
  http://stackoverflow.com/questions/17815959/resize-8-bit-image-by-2-with-arm-neon

- **Convert code to Neon assembly**
  void sum(int length, int *a, int *b, int *c, int *d, char *result)
  http://stackoverflow.com/questions/11339726/convert-code-to-neon-assembly?rq=1

- **Summing 3 vectors and get the result in neon**
  http://stackoverflow.com/questions/15523782/summing-3-vectors-and-get-the-result-in-neon?rq=1
  downsample3dOnePass(uint8_t* src, uint8_t *dst, int srcWidth, int srcHeight, int strideSrc, int strideDest)

- **git/vp9/common/arm/neon**
  https://code.google.com/p/webm/source/browse/vp9/common/arm/neon?repo=libvpx&r=4b2c2b9aa4a273a23d90ddb3bbf6dfb3482e0b8f

NEON SIMD

- **Intrinsics Performance**
  https://wiki.linaro.org/RichardSandiford/Sandbox/IntrinsicsPerformance

- **ARM-NEON for video format conversion**
  http://stackoverflow.com/questions/11646629/arm-neon-for-video-format-conversion

- **libyuv YUV scaling and conversion functionality**
  https://code.google.com/p/libyuv/source/browse/#svn%2Ftrunk%2Fsource

- **libpixelflinger / col32cb16blend_neon.S**
  https://github.com/android/platform_system_core/blob/master/libpixelflinger/col32cb16blend_neon.S

- **How to initialize and process arrays in arm neon assembly**
  http://2exception.com/question/115454

- **ARM NEON Intrinsic-optimized conversion**
  http://computer-vision-talks.com/2011/02/a-very-fast-bgra-to-grayscale-conversion-on-iphone/

- **Using Neon form C**
  http://www.doulos.com/knowhow/arm/using_your_c_compiler_to_exploit_neon/Resources/Presentation/Using_Neon_form_C.swf

- **Saturating Addition in C**
  http://stackoverflow.com/questions/121240/saturating-addition-in-c/121323

- **4.7.2. USAD8 and USADA8**
  Unsigned Sum of Absolute Differences, and Accumulate
  http://infocenter.arm.com/help/index.jsp?topic=/com.arm.doc.dui0204h/Cihcjhif.html

- **void resizeBilinearNeon(uint8_t *src, uint8_t *dest, float srcWidth, float srcHeight, float destWidth, float destHeight)**
  http://stackoverflow.com/questions/15501429/bilinear-interpolation-from-c-to-neon/15504660#15504660

- **libwebp / src / dsp / upsampling_neon.c**
  https://github.com/dumganhar/libwebp/blob/master/src/dsp/upsampling_neon.c

- **Neon google**
  http://code.metager.de/source/search?q=neon&project=google

- **ARGON - Basic Image processing primitives, optimized for ARM NEON**
  https://github.com/petecoup/argon/blob/master/src/primitives/ops.c

- **opensource.apple.com ARM NEON**
  http://www.opensource.apple.com/source/gcc/gcc-5572.10.2/gcc/testsuite/gcc.target/arm/neon/

- **matrixMul_neon / matrixMul_neon.cpp**
  https://github.com/mwsealey/matrixMul_neon/blob/master/matrixMul_neon.cpp

- **/* neon_example.c - Neon intrinsics example program */**
  http://infocenter.arm.com/help/index.jsp?topic=/com.arm.doc.dui0205j/BABGHIFH.html

- **NEON image analysis**
  http://dspace.cc.tut.fi/dpub/bitstream/handle/123456789/21106/suominen.pdf?sequence=3

- **Siarhei Siamashka (siarhei.siamashka@gmail.com)**
  NEON yuv_convert.h

- **Ne10 neon codes**
  https://github.com/projectNe10/Ne10/tree/master/modules/math

- **Neon test math**
  http://listengine.tuxfamily.org/lists.tuxfamily.org/eigen/2010/03/msg00056.html

- **Skia neon**
  http://skia.googlecode.com/svn-history/r548/trunk/src/core/SkBitmapProcState_matrixProcs.cpp

- **libs/pixelflinger/t32cb16blend_neon.S**
  https://gitorious.org/0xdroid/system_core/commit/34fc84ab9236351b58ff6ee24435be8e7993b448/diffs

- **Developing 3D Applications for PowerVR MBX Accelerated ARM Platforms**
  http://www.iqmagazineonline.com/magazine/pdf/v_4_3_pdf/v_4_3_pg-26-34.pdf

- **Reviewing merge request #2665: ARM NEON optimizations for QString**
  Latin1 converters
  src/corelib/tools/qstring.cpp
  http://qt.gitorious.org/qt/qt/merge_requests/2665

- **Optimization of Multimedia Codecs using ARM NEON**
  http://www.incubesol.com/images/Optimization%20of%20Multimedia%20Codecs%20using%20ARM%20NEON.pdf

- **Decoupling Algorithms from Schedules for Easy Optimization of Image Processing Pipelines**
  http://people.csail.mit.edu/jrk/halide12/halide12.pdf

- **DEFINES += QT_HAVE_NEON ?**
  http://pastebin.com/VX1FYZab

- **Neon article**
  http://infocenter.arm.com/help/topic/com.arm.doc.dht0002a/DHT0002A_introducing_neon.pdf

- **Neon architecture**
  http://people.cs.nctu.edu.tw/~chenwj/slide/ARM/ARM%20NEON%20-%20Poki.pptx

- **Neon div by 3**
  https://inbeta.org/2012/08/23/how-to-divide-by-3-quickly-using-the-neon-instruction-set/

- **neon instruction setvmovl_u8**
  Write neon u32 to mem
  http://forums.arm.com/index.php?/topic/15660-how-to-write-out-neon-u32-to-memory-by-u8/

- **QT_NO_NEON=1 exists to disable NEON usage by Qt**
  http://qt-project.org/forums/viewthread/13076/

- **VLC - Rémi Denis-Courmont**
  neon.c : ARM NEONv1 chroma conversion module for VLC
  http://mailman.videolan.org/pipermail/vlc-devel/2009-September/066395.html

- **Efficiently splitting the CbCr plane with ARM NEON intrinsics**
  http://blog.lumberlabs.com/2011/04/efficiently-splitting-cbcr-plane-with.html

- **Neon OMAP**
  http://e2e.ti.com/search/default.aspx#q=Neon+&g=26&sc=forum

- **NEON: Advanced SIMD**
  http://processors.wiki.ti.com/index.php/Cortex-A8_Features#NEON:_Advanced_SIMD

- **Pulse + ARM NEON**
  http://pulsar.webshaker.net

- **Color reducton using NEON**
  http://pulsar.webshaker.net/2011/09/21/reduction-de-couleur-avec-neon

- **arm-angstrom-linux-gnueabi-gcc -O2 -march=armv7-a -mtune=cortex-a8 -mfpu=neon -mfloat-abi=softfp -o membench membench**

- **compiling Neon optimized code (with Codesourcery arm-none-linux-gnueabi)**
  CFLAGS += -O3 -mcpu=cortex-a8 -mfpu=neon -mfloat-abi=softfp
  CFLAGS += -ftree-vectorize -ftree-vectorizer-verbose=3
  CFLAGS += -fdump-tree-vect

- **NEON test tutorial**
  http://www.delmarnorth.com/microwave/requirements/neon-test-tutorial.pdf

- **6.55.3 ARM NEON Intrinsics**
  http://gcc.gnu.org/onlinedocs/gcc/ARM-NEON-Intrinsics.html

- **DEFINES += QT_HAVE_NEON ?**
  http://pastebin.com/VX1FYZab

- **neon_example.c - Neon intrinsics example program**
  http://infocenter.arm.com/help/topic/com.arm.doc.dui0205j/BABGHIFH.html

- **Example 4.2. NEON intrinsics**
  http://www.developer.nokia.com/Community/Discussion/showthread.php?218026-Nokia-Qt-SDK-1.0-ARM-NEON-intrinsics

- **C vs Assembler vs Neon Performance**
  http://stackoverflow.com/questions/11508172/c-vs-assembler-vs-neon-performance

- **NEON for Multimedia Applications**
  Venu Gopal Reddy
  http://www.arm.com/files/pdf/AT_-_NEON_for_Multimedia_Applications.pdf

- **Parallelization of IIR Filters Using SIMD Extensions**
  Rade Kutil
  Proc. IWSSIP, pages 65-68, Bratislava, June 2008
  DOI:10.1109/IWSSIP.2008.4604368
  http://www.cosy.sbg.ac.at/~rkutil/publication/Kutil08b.pdf

- **Example 4.2. NEON intrinsics**
  http://infocenter.arm.com/help/index.jsp?topic=/com.arm.doc.dui0205j/BABGHIFH.html
  gcc -Wall -O3 -mfloat-abi=softfp -mfpu=neon neon-example.c -o neon-example

- **NEON FPU not working with Data from Stack?**
  http://e2e.ti.com/support/dsp/davinci_digital_media_processors/f/717/t/117623.aspx

- **FTW ARM**
  http://www.vesperix.com/arm/fftw-arm/

- **svn - Revision 147858: /trunk/deps/third_party/libvpx/source/libvpx/vp8/common/arm/neon**
  http://src.chromium.org/svn/trunk/deps/third_party/libvpx/source/libvpx/vp8/common/arm/neon/

- **Fast Neon 3-Term Cross Product**
  http://www.gp32x.com/board/index.php?/topic/55455-fast-neon-3-term-cross-product/

- **GP32Xtreme - Home of the OpenSource gaming Handheld**
  http://www.gp32x.com

- **arm/neon/copymem16x16_neon.asm**
  http://code.google.com/r/kbdyj1-libvpx/source/browse/vp8/common/arm/neon/copymem16x16_neon.asm?r=11a222f5d963097fb72cec7bf6e06ff8c3d96fa4

- **Most of the functions we targeted relate to Color format conversion, blit and blending computation**

  Take Sop_rgb16_to_Dacc optimization, listed below, for example, It is used to convert RGB565 to ARGB8888

```
"vld1.16 {q0}, [%[S]]! \n\t" /* Load 8 pixels from Source to q0 */
"vmov.i16 q4, #0x00FF \n\t" /* A: q4 */
"vshr.u16 q3, q0, #8 \n\t"
"vsri.u8 q3, q3, #5 \n\t" /* R: q3 */
"vshl.u16 q2, q0, #5 \n\t"
"vshr.u16 q2, q2, #8 \n\t"
"vsri.u8 q2, q2, #6 \n\t" /* G: q2 */
"vshl.u16 q1, q0, #11 \n\t"
"vshr.u16 q1, q1, #8 \n\t"
"vsri.u8 q1, q1, #5 \n\t" /* B: q1 */
"vst4.16 {d2, d4, d6, d8}, [%[D]]! \n\t"
"vst4.16 {d3, d5, d7, d9}, [%[D]]! \n\t" /* Store 8 pixels to Dst */
```

- **Unknown GCC error, while compiling for ARM NEON (Critical)**
  http://stackoverflow.com/questions/3343372/how-to-merge-elements-of-2-rows-using-neon-simd

- **StackOverFlow ... tagged NEON**
  http://stackoverflow.com/questions/tagged/neon
  http://stackoverflow.com/search?page=11&tab=relevance&q=neon

- **Nokia Qt SDK 1.0 + ARM NEON intrinsics**
  http://www.developer.nokia.com/Community/Discussion/showthread.php?218026-Nokia-Qt-SDK-1.0-ARM-NEON-intrinsics

- **ARM + NEON Assembly code for GCC (including an example NEON function implementation)**
  http://www.shervinemami.info/armAssembly.html

- **YUV2RGB.neon.S**
  http://code.google.com/p/chromium/issues/detail?id=71403
  https://github.com/xbmc/atv2/blob/atv2/xbmc/cores/VideoRenderers/yuv2rgb.neon.S

- **Reference C++ BGRA to Grayscale conversion function**
  static void neon_asm_convert(uint8_t * __restrict dest, uint8_t * __restrict src, int numPixels)
  http://computer-vision-talks.com/2011/02/a-very-fast-bgra-to-grayscale-conversion-on-iphone/

- **Rgb to grayscale conversion with arm neon**
  http://stackoverflow.com/questions/8501987/rgb-to-grayscale-conversion-with-arm-neon

- **Efficient Neon Implementation Of Clipping**
  http://stackoverflow.com/questions/11516935/efficient-neon-implementation-of-clipping

- **ARM NEON: comparing 128 bit values**
  http://stackoverflow.com/questions/9068959/arm-neon-comparing-128-bit-values

- **Implementation in NEON of non uniform address jumps**
  http://stackoverflow.com/questions/11224679/implementation-in-neon-of-non-uniform-address-jumps

- **How to solve bad instruction `vadd.i16 q0,q0,q0' when attempting to check gcc for neon instruction**
  -mfpu=neon -mfloat-abi=softfp -mcpu=cortex-a8 -march=armv7-a -mthumb

  http://gcc.gnu.org/onlinedocs/gcc-3.3.6/gcc/Invoking-GCC.html

  GCC Command Options
  -fverbose-asm

  look at assembly generated by the compiler
  gcc -S -o - yourfile.c

- **void double_elements(unsigned int *ptr, unsigned int size);**
  plain.c **https://gist.github.com/930990**
  plain.s **https://gist.github.com/930995**
  neon.c **https://gist.github.com/930997**
  neon.s **https://gist.github.com/931001**

- **Neon Optimization using intrinsics**
  http://stackoverflow.com/questions/5717011/neon-optimization-using-intrinsics

- **NEON has addition and subtraction instructions that can widen values from 8->16, 16->32 or 32->64 bits**

```
uint8x8_t u88_a, u88_b;
uint16x8_t u168_diff;
// load 8 unsigned chars from a[]
u88_a = vld1_u8(a);
// load 8 unsigned chars from b[]
u88_b = vld1_u8(b);
// calculate the difference and widen to 16-bits
u168_diff = vsubl_u8(u88_a, u88_b);
```

  Conversion short to int and sum with neon
  http://stackoverflow.com/questions/9017946/conversion-short-to-int-and-sum-with-neon

- Optimizing RGBA8888 to RGB565 conversion with NEON
  http://stackoverflow.com/questions/7707603/optimizing-rgba8888-to-rgb565-conversion-with-neon

- DNImageConvert - Image format conversion routines
  https://github.com/darknoon/DNImageConvert

  YCbCrShader shint
  http://www.luki.webzdarma.cz/up/YCbCrShader_shint.cpp

- rgb to yuv420 algorithm eficiency
  http://stackoverflow.com/questions/9465815/rgb-to-yuv420-algorithm-eficiency/9466026#9466026

- ARMv7-A, including Thumb-2 and VFPv3-D16 instructions, with optional support for NEON/VFPv3-D32 instructions
  http://developer.android.com/tools/sdk/ndk/overview.html

- Eigen is a C++ template library for linear algebra: matrices, vectors, numerical solvers, and related algorithms
  http://eigen.tuxfamily.org/index.php?title=Main_Page

- YUV-Dedoder.c
  http://dl.dropbox.com/u/49855874/yuv-decoder.c

- Example 4.2. NEON intrinsics
  http://www.developer.nokia.com/Community/Discussion/showthread.php?218026-Nokia-Qt-SDK-1.0-ARM-NEON-intrinsics

- math-neon - ARM NEON optimised approximate cmath like library
  http://code.google.com/p/math-neon/

- NEON for Multimedia Applications
  http://www.arm.com/files/pdf/AT_-_NEON_for_Multimedia_Applications.pdf

- BOOST C++ Library
  http://www.boost.org

- Måns Rullgård, Optimizing for Linux on ARM

http://www.youtube.com/watch?v=5XdT57EC8nc

- mansr libav
  http://git.mansr.com/?p=libav;a=tree;h=refs/heads/master;hb=refs/heads/master

- http://processors.wiki.ti.com/index.php?title=Cortex_A8

- Neon Intrinsics for z[i] = x[i] + y[i]
  http://processors.wiki.ti.com/index.php/Cortex_A8#Neon_Intrinsics

- Neon vs DSP FFT performance
  http://e2e.ti.com/support/dsp/omap_applications_processors/f/447/p/71122/259776.aspx
  http://e2e.ti.com/cfs-file.ashx/__key/telligent-evolution-components-attachments/00-447-01-00-00-25-97-76/FFMPEG_5F00_FFT.zip

- Coding for NEON - Part 1: Load and Stores
  http://blogs.arm.com/software-enablement/161-coding-for-neon-part-1-load-and-stores/

- Coding for NEON - Part 2: Dealing With Leftovers
  http://blogs.arm.com/software-enablement/196-coding-for-neon-part-2-dealing-with-leftovers/

- Coding for NEON - Part 3: Matrix Multiplication
  http://blogs.arm.com/software-enablement/241-coding-for-neon-part-3-matrix-multiplication/

- Coding for NEON - Part 4: Shifting Left and Right (An Example: Converting Color Depth)
  http://blogs.arm.com/software-enablement/277-coding-for-neon-part-4-shifting-left-and-right/

- Coding for NEON - Part 5: Rearranging Vectors
  http://blogs.arm.com/software-enablement/684-coding-for-neon-part-5-rearranging-vectors/

- DirectFB NEON Optimization
  https://blueprints.launchpad.net/linaro-multimedia-project/+spec/engr-multimedia-directfb-neon-optimization

- Introducing NEON™ Development Article
  http://infocenter.arm.com/help/topic/com.arm.doc.dht0002a/DHT0002A_introducing_neon.pdf

- **Nils Pipenbrinck's Hilbert-Space**
  http://hilbert-space.de

- **pn53x-chip**
  http://www.libnfc.org/documentation/hardware/pn53x-chip

- **Neon Optimization**
  http://www1.geexbox.org/~ben/mac-bench/

- **More on EDMA3 on the BeagleBoard/OMAP3530**
  http://hilbert-space.de/?p=47

- **View topic - Compiler Error due to using Neon Pipeline on OMAP3530**
  http://www.openqnx.com/phpbbforum/viewtopic.php?t=11174

- **Looking for NEON optimization example**
  https://groups.google.com/forum/?fromgroups#!topic/beagleboard/LKkdvi0qwzU
  Måns Rullgård **mans@mansr.com**

- **Check that NEON polynomial vector types are suitably incompatible with integer vector types of the same layout.**
  http://www.koders.com/c/fidD308969B6FBEEEFB1C2E0DF79A4D43DAA6A0CCFC.aspx?s=%22Abi%22#L6

- **Cortex-A8 Neon Architecture**
  http://processors.wiki.ti.com/index.php/Cortex-A8_Neon_Architecture

- **void NeonInit(void)**
  {
  unsigned int v;
  // *** this took a long time to discover ...
  // First, need to enable access to co-processors c10 and c11 - vfp and neon
  //Coprocessor Access Control Register
  asm volatile("mrc p15, 0, %[res], c1, c0, 2" :[res] "=r" (v));//v = mrc("c1, c0, 2");

```
v |= 0xf<<20;
asm volatile("mcr p15, 0, %[val], c1, c0, 2" ::[val] "r" (v));//mcr("c1, c0, 2", v);
asm volatile("isb");                          // required apparently
//Enable NEON instructions in FPEXC ("c8, c0, 0") register.
asm volatile("mcr p10, 7, %[val], c8, c0, 0" ::[val] "r" (1<<30));
RegisterSet(&PM_PWSTCTRL_MPU, 0x3, 2, 16);    //L2 Cache memory is ON when domain is ON
RegisterSet(&PM_PWSTCTRL_MPU, 1, 1, 8);       //L2 Cache memory is retained when domain is in RETENTION state
RegisterSet(&CM_CLKSTCTRL_NEON, 0, 2, 0);       //Automatic transition of clock state is disabled
RegisterSet(&PM_PWSTCTRL_MPU, 1, 1, 2);       //Logic and L1 Cache are retained when domain is in RETENTION state
RegisterSet(&PM_PWSTCTRL_MPU, 0x3, 2, 0);     //Power state control: ON
RegisterSet(&PM_WKDEP_NEON, 1, 1, 1);           //NEON domain is woken-up upon MPU domain wake-up.
RegisterSet(&PM_PWSTCTRL_NEON, 0x3, 2, 0);    //Power state control: ON
}
```

- **IIR Filter ARM Assembly Code**
  http://ieee.ucsd.edu/wiki/tutorials:fixed_point_filtering_library
  http://ieee.ucsd.edu/wiki/tutorials:fixed_point_filtering_library#fir_filter_arm_assembly_code

- **rgb_to_gray**
  http://torus.untergrund.net/code/rgb_to_gray.s

- **root/trunk/Source/WebCore/platform/graphics/filters/arm**
  http://trac.webkit.org/browser/trunk/Source/WebCore/platform/graphics/filters/arm

- **Code samples**
  http://silver.arm.com/browse/OXOO/

  AV Acceleration
  http://www.khronos.org/openmax/

  Cortex™-A7 NEON™Media ProcessingEngineRevision: r0p3Technical Reference Manual
  http://infocenter.arm.com/help/topic/com.arm.doc.ddi0462d/DDI0462D_cortex_a7_neon_mpe_r0p3_trm.pdf

- **Pandora Wiki - Floating Point Optimization**
  NEON: **http://pandorawiki.org/Floating_Point_Optimization**
  Projects: **http://pandorawiki.org/Software_projects**

- Why ...
  Anderson ARM

http://elinux.org/images/4/40/Elc2011_anderson_arm.pdf

- **Siarhei Siamashka**
  sbc: ARM NEON optimization for scale factors calculation
  sbc: ARM NEON optimized joint stereo processing in SBC encoder
  sbc: ARM NEON optimizations for input permutation in SBC encoder
  sbc: slightly faster 'sbc_calc_scalefactors_neon'

- **Neon optimization of Sub band coding (SBC) Encoder**
  Sujata Jha
  http://in.linkedin.com/pub/sujata-jha/24/490/98

  time ./sbcenc -b53 -s8 test.au > /dev/null

- **sbc_primitives_neon.c**
  http://permalink.gmane.org/gmane.linux.bluez.kernel/6149

- **What is the fastest way to copy memory on a Cortex-A8?**
  http://infocenter.arm.com/help/index.jsp?topic=/com.arm.doc.faqs/ka13544.html

- **void fir_REF(short * y, const short *x, const short *h, int n_out, intn_coefs)**
  void fir_NEON(short * y, const short *x, const short *h, int n_out,int n_coefs)
  https://groups.google.com/forum/?fromgroups#!topic/gnu.gcc.help/TwzlChjmYcA

- **CAIRO Librapry Graphic**
  http://www.cairographics.org/
  List: http://lists.cairographics.org/archives/cairo/

  Search for NEON optimization, format change rgb888
  http://lists.cairographics.org/archives/cairo/2009-June/017268.html

  Output can be PDF ?
  http://www.cairographics.org/backends/

- **Pixman NEON**
  http://cgit.freedesktop.org/pixman/log/?qt=grep&q=neon

- **BeagleBoard / ARM NEON**
  http://elinux.org/BeagleBoard#ARM_NEON

- Måns Rullgård git
  http://git.mansr.com/

- Cortex™-A8 (Revision: r1p1) Technical Reference Manual
  http://infocenter.arm.com/help/topic/com.arm.doc.ddi0344b/DDI0344.pdf

- Chapter 5. NEON and VFP Programming
  Chapter 13. NEON & VFPLite Programmer's Model

- RealView® Compilation Tools Version 3.1 Assembler Guide
  http://infocenter.arm.com/help/topic/com.arm.doc.dui0204h/DUI0204H_rvct_assembler_guide.pdf

- memspeed.c
  https://groups.google.com/group/beagleboard/attach/9ddb87c1de9275d/memspeed.c?part=2&authuser=0&view=1

- Memory bandwidth problem / BeagleBoard
  https://groups.google.com/forum/?fromgroups#!topic/beagleboard/Ese9QV-8CZM

- Optimizing Code for ARM Cortex-A8 with NEON SIMD
  https://pixhawk.ethz.ch/omap/optimization/arm_cortex_a8

- Architecture and Implementationof the ARM®Cortex™-A8Microprocessor
  https://pixhawk.ethz.ch/_media/software/optimization/neon_whitepaper.pdf

- ARM NEON support in the ARM compiler
  https://pixhawk.ethz.ch/_media/software/optimization/neon_support_in_the_arm_compiler.pdf

- ARM NEON Memory Hazards
  http://hardwarebug.org/2008/12/31/arm-neon-memory-hazards/

- NEON + VFP
  http://infocenter.arm.com/help/index.jsp?topic=/com.arm.doc.dui0204h/Bcfjicfj.html
  http://infocenter.arm.com/help/topic/com.arm.doc.dui0204h/DUI0204H_rvct_assembler_guide.pdf

- ARM-GCC / NEON
  http://gcc.gnu.org/onlinedocs/gcc/ARM-NEON-Intrinsics.html

- CORTEX-A8 / NEON

http://processors.wiki.ti.com/index.php?title=Cortex_A8

- **How to enable the NEON coprocessor?**
  http://processors.wiki.ti.com/index.php/FAQ_OMAP35x_Linux_PSP#How_to_enable_the_NEON_coprocessor.3F

- **Trying to get Neon optimization working for benchmarking OMAP3530 (gcc/linux)**
  http://e2e.ti.com/support/dsp/omap_applications_processors/f/447/t/30093.aspx

- **View topic - Compiler Error due to using Neon Pipeline on OMAP3530**
  http://www.openqnx.com/phpbbforum/viewtopic.php?t=11174

- **Looking for NEON optimization example**
  https://groups.google.com/forum/?fromgroups#!topic/beagleboard/LKkdvi0qwzU

- Dirk Behme **dirk.behme@googlemail.com**
  Måns Rullgård **mans@mansr.com**

- **Here's a simple NEON version, unrolled 8 times:**

```
float vmac_neon(const float *a, const float *b, unsigned n)
{
float s = 0;
asm ("vmov.f32 q8, #0.0 \n\t"
"vmov.f32 q9, #0.0 \n\t"
"1: \n\t"
"subs %3, %3, #8 \n\t"
"vld1.32 {d0,d1,d2,d3}, [%1]! \n\t"
"vld1.32 {d4,d5,d6,d7}, [%2]! \n\t"
"vmla.f32 q8, q0, q2 \n\t"
"vmla.f32 q9, q1, q3 \n\t"
"bgt 1b \n\t"
"vadd.f32 q8, q8, q9 \n\t"
"vpadd.f32 d0, d16, d17 \n\t"
"vadd.f32 %0, s0, s1 \n\t"
: "=w"(s), "+r"(a), "+r"(b), "+r"(n)
:: "q0", "q1", "q2", "q3", "q8", "q9");
return s;
}
```

- **Neon vs DSP FFT performance**
  http://e2e.ti.com/support/dsp/omap_applications_processors/f/447/p/71122/259776.aspx

- **ARM NEON Development**
  http://www.add.ece.ufl.edu/4924/docs/arm/ARM%20NEON%20Development.pdf

October 2013 - BHC