235X Memory Performance Tests

CONFIGURATION

These tests were run on the Waveshare Core2350B board with PSRAM and Flash. These tests were not meant to be exhaustive and are designed to show relative performance (to 1 cycle SRAM). No work has been done to tune performance of PSRAM. The core was running at stock 150Mhz and PSRAM was configured:

```
Max Select: 18, Min Deselect: 2, clock divider: 2
```

RESULTS (TL;DR)

For Sequential Reads compared to SRAM, Flash was 26.07x slower, PSRAM cached was 18.74x slower, PSRAM no-cache was 27x slower.

For Random Reads compared to SRAM, Flash was 99.98x slower, PSRAM cached was 56.27x slower, PSRAM no-cache was 96.95x slower.

For Sequential Writes compared to SRAM, PSRAM cached was 60.75x slower, PSRAM no-cache was 27x slower.

For Random Writes compared to SRAM, PSRAM cached was 100.59x slower, PSRAM no-cache was 96.7x slower.

DATA

Iteration Count	327,680,000	clock_hz	150,000,000			
Test Name	**Memory**	**Size**	**Msec**	**Cycles per Iteration**	**Overhead**	**Ratio : 1**
SEQ SRAM READ	0x20002BC8	16384	9284829	4.25	3.25	
SEQ ROM READ	0x10006158	16384	64040290	29.32		26.07
SEQ PSRAM READ	0x11000000	16384	48045599	21.99		18.74
SEQ PSRAM NOCACHE READ	0x14000000	16384	66090753	30.25		27.00
RND SRAM READ	0x20002BC8	16384	17476828	8.00	7.00	
RND ROM READ	0x10006158	16384	233707964	106.98		99.98
RND PSRAM READ	0x11000000	16384	138220924	63.27		56.27
RND PSRAM NOCACHE READ	0x14000000	16384	227077953	103.95		96.95
SEQ SRAM WRITE	0x20002BC8	16384	13654031	6.25	5.25	
SEQ PSRAM WRITE	0x11000000	16384	144189214	66.00		60.75
SEQ PSRAM NOCACHE WRITE	0x14000000	16384	70443211	32.25		27.00
RND SRAM WRITE	0x20002BC8	16384	18023094	8.25	7.25	
RND PSRAM WRITE	0x11000000	16384	235572917	107.84		100.59
RND PSRAM NOCACHE WRITE	0x14000000	16384	227078144	103.95		96.70

CODE

https://github.com/FarLeftLane

ANALYSIS

TBD...