PAWS for ULX3S Risc-V RV32IMC CPU

25MHZ SYSTEM CLOCK

> 50MHZ CPU CLOCK

50MHZ MEMORY CLOCK

> 50MHZ I/O CLOCK

25MHZ VIDEO CLOCK

50MHZ GPU CLOCK

CPU COMPRESSED INSTRUCTION MEMORY EXPANDER BRAM 16k BIOS / Stack **ADDSUB BRANCH SDRAM** 32MB 8k I Cache **COMPARISON LOGICAL** 8K D Cache **SHIFTER** ACCELERATED DIVIDER **DSP MULTIPLIER**

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н **GPU** D Pixel M Blitter **BITMAP** (Filled) Circle 640x480 Line 64 colour Filled Rectangle **ALPHA CHANNEL** Filled Triangle D Vector Block S BACKGROUND GENERATOR 42 x 32 SCROLLABLE TILEMAP P LOWER SPRITE LAYER L **UPPER SPRITE LAYER** 80 x 30 CHARACTER MAP Α 80 x 8 TERMINAL WINDOW Y

2 x **AUDIO CHANNELS**

(LEFT & RIGHT)
SQUARE WAVE
SAWTOOTH WAVE
TRIANGLE WAVE
SINE WAVE
WHITE NOISE

BUTTONS LEDS

PSEUDO RANDOM NUMBER GENERATOR

SPI SDCARD

2 x 1hz TIMERS 2 x 1khz TIMERS

> **UART** 115200 BAUD