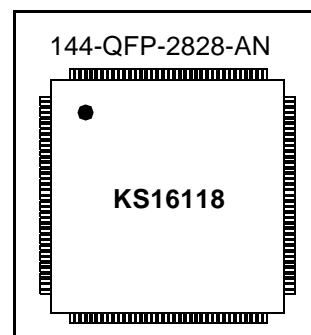


INTRODUCTION

The KS16118 is a facsimile controller that provides major functions on a single chip. It contains a fax modem with an Analog Front-End (AFE), a CPU, an image processor with a codec accelerator, CPU peripheral circuits, and general purpose I/O ports. The peripheral circuits include an 8-bit timer, 2-channel Serial I/O (SIO), 3-channel direct memory access (DMA), a real time clock, and a tone generator. The fax modem, which is functionally the same as the KS16116, is a synchronous, half-duplex modem capable of speeds up to 9600 bps. The image processor includes a 6-bit half-flash A/D converter, a scanner controller, TPH interfaces, and a codec accelerator.

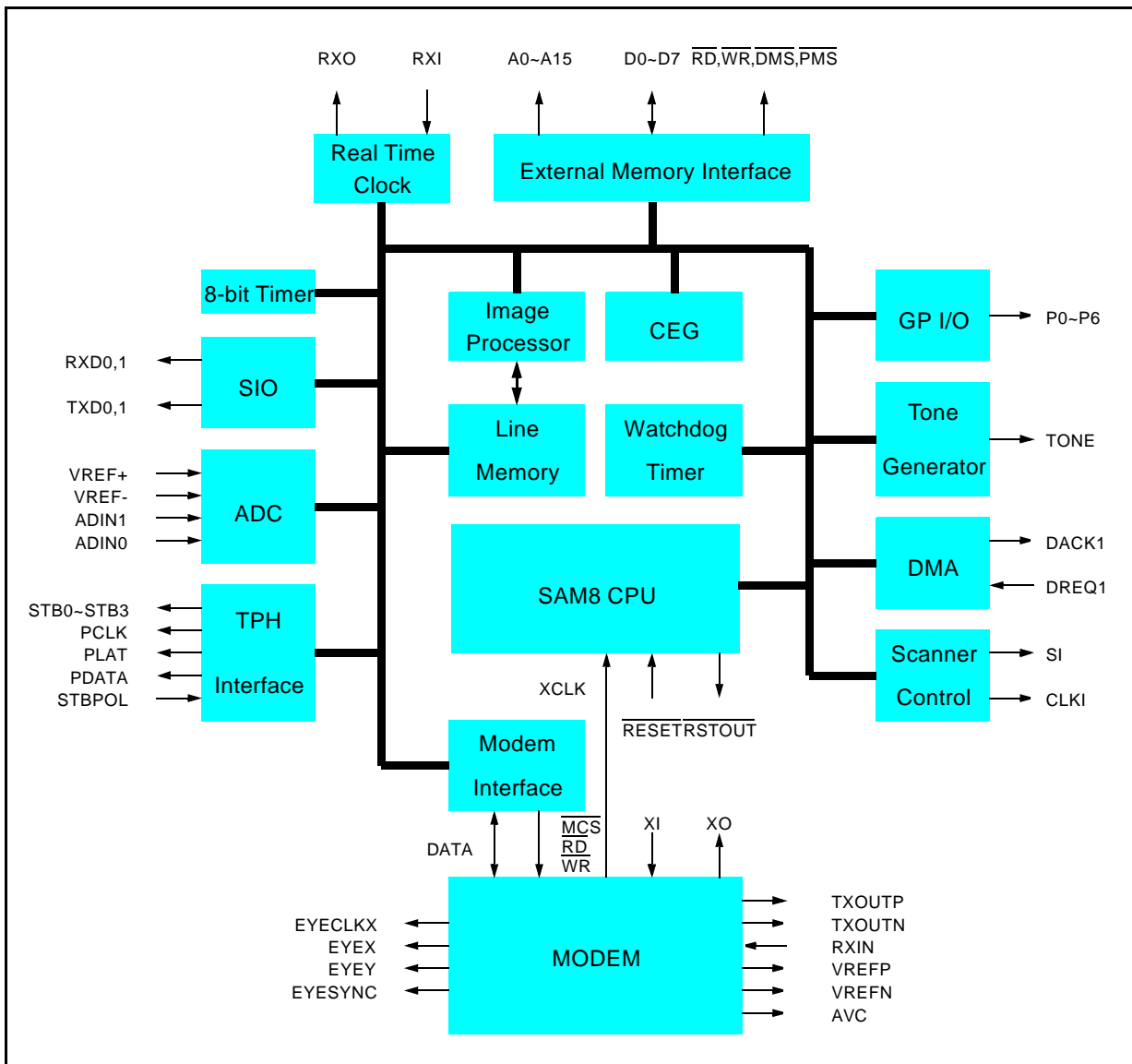
Each functional block is equipped with many versatile functions. All functions necessary for home facsimile machine as well as small business facsimile machine are intergrated in a single chip. The KS16118 is housed in 144-QFP and operates with +5V single power.



FEATURES

- CPU
 - SAM8 CPU core
- Memory
 - 64-Kbyte external data or peripheral memory
 - 64-Kbyte external program memory
 - 128 general purpose registers
 - 16 working registers
 - 104 system and peripheral registers
- Interrupts
 - 5 interrupt levels
 - 10 interrupt sources with 9 vectors
 - Fast interrupt processing
- Watchdog Timer
 - 8-bit timer for noise protection or interrupts
- I/O Ports
 - Five output ports (32 pins)
 - One input port (4 pins)
 - Three bidirectional ports (20 pins)
- Serial Ports
 - 2 channel serial I/O for serial communication to an operational panel, etc.
- 8-bit Timer
 - An 8-bit timer for timing schedule
 - Auto-reload method
- External Interface
 - Programmable waits for external memory and peripheral chip selection
 - Three DMA channels
- Tone Generator
 - 366 Hz to 93.75 KHz at 12 MHz CPU clock
- Real Time Clock
 - Operate with 3V backup battery
 - Low power consumption
- A/D Converter
 - Two channels for TPH and scanner input
 - Half-flash, 6-bit resolution
 - 8 CPU-clocks peak conversion time
- Scanner Control Block
 - 1728 or 2048-pixel scan width
 - Minimum scanning time: 5ms
- Image Processing Unit
 - Decimation by 1% (up to 50%)
 - Shading correction for A4 and B4 size
 - 64-gray level half-tone processing
 - 2048X6 bits line memory for error diffusion
 - 2048X6 bits line memory for shading correction
 - 64X6 bits line memory for gamma-correction
 - Edge emphasis and edge strength
 - Programmable threshold generation
 - Peak value detection
- TPH Interface Block
 - Up to 4 TPH strobes
- Changing Element Generator (CEG)
 - For T.4 MH/MR compression and decompression
- Modem
 - Group 3 facsimile transmission/reception according to ITU-T V.29, V.27ter short and long train, V.21 Ch2, T.30, and T.4
 - Half-duplex operation
 - Receiver dynamic range: 0 dBm to -43 dBm
 - Programmable transmit level: 0 dBm to -15 dBm

- Programmable transmit attenuation: 0 dB to 14 dB in 2 dB step
- Programmable DTMF generation/detection
- Programmable tone generation/detection
- Programmable interface memory interrupt
- Programmable turn-on and turn-off threshold
- Automatic T/2 adaptive equalizer
- HDLC capability at all speeds
- Diagnostic capability allowing telephone line quality monitoring
- ITU-T V.24 compatible interface
- Caller ID reception and detection
- Software compatible with KS16116
- Miscellanies
 - 24.00014 MHz
 - Crystal, ceramic, or external clock sources
 - Operating Temperature Range: 0°C to 70°C
 - Operating Voltage Range: +4.75 to +5.25V
 - Package Type: 144-pin QFP
- ESD Mode
 - HBM(Human Body Model): ± 2,000V
 - MM(Machine Model): ± 300V
 - CDM(Charged Device Model): ± 800V



KS16118 Pin Assignments

