

RABBIT[®] 5000 CPU MICROCONTROLLER

REFERENCE

REGISTER LEGEND

- Read/Write
- Write Only
- Read Only
- Read (Special Behavior on Write Operation)

NOTE: ZERO MUST BE WRITTEN TO ALL UNUSED BITS

Processor Control

GLOBAL CLOCK MODE REGISTER (GCMR) (0x0000)

- 00 = 1m DITHER
- 01 = SPREADER OFF
- 02 = SPREADER ON
- 03 = RESERVED

GLOBAL CONTROLSTATUS REGISTER (GCSR) (0x0004)

- 00 = NO RESET OR WDT TIMEOUT
- 01 = WATCHDOG TIMEOUT
- 02 = NOT POSSIBLE
- 03 = NOT OCCURRED

GLOBAL POWER SAVE CONTROL REGISTER (GSPCR) (0x0008)

- 00 = STOP
- 01 = STOP
- 02 = STOP
- 03 = STOP

GLOBAL OUTPUT CONTROL REGISTER (GOCR) (0x000C)

- 00 = CLK
- 01 = CLK
- 02 = CLK
- 03 = CLK

GLOBAL CPU CONFIGURATION REGISTER (GPCR) (0x0010)

- 00 = CPU
- 01 = CPU
- 02 = CPU
- 03 = CPU

Memory Management Unit

MMU INSTRUCTION DATA REGISTER (MIDR) (0x0010)

- 00 = 16 BIT INTERNAL I/O ADDRESSES
- 01 = 16 BIT INTERNAL I/O ADDRESSES
- 02 = 16 BIT INTERNAL I/O ADDRESSES
- 03 = 16 BIT INTERNAL I/O ADDRESSES

MMU EXPANDED CODE REGISTER (MECR) (0x0014)

- 00 = BANK SELECT ADDRESS 0
- 01 = BANK SELECT ADDRESS 1
- 02 = BANK SELECT ADDRESS 2
- 03 = BANK SELECT ADDRESS 3

MEMORY ALTERNATE CONTROL REGISTER (MACR) (0x0018)

- 00 = NORMAL 16 BIT OPERATION FOR CS1
- 01 = NORMAL 16 BIT OPERATION FOR CS2
- 02 = NORMAL 16 BIT OPERATION FOR CS3
- 03 = NORMAL 16 BIT OPERATION FOR CS4

Timer A

TIMER A CONTROLSTATUS REGISTER (TACSR) (0x00A0)

- 00 = CORRESPONDING TIMER A COUNTER HAS REACHED TIME COUNT
- 01 = CORRESPONDING TIMER A COUNTER HAS REACHED TIME COUNT
- 02 = CORRESPONDING TIMER A COUNTER HAS REACHED TIME COUNT
- 03 = CORRESPONDING TIMER A COUNTER HAS REACHED TIME COUNT

TIMER A PRESCALE REGISTER (TAPR) (0x00A4)

- 00 = 1
- 01 = 1
- 02 = 1
- 03 = 1

TIMER A CONTROL REGISTER (TACR) (0x00A8)

- 00 = CORRESPONDING TIMER A COUNTER HAS REACHED TIME COUNT
- 01 = CORRESPONDING TIMER A COUNTER HAS REACHED TIME COUNT
- 02 = CORRESPONDING TIMER A COUNTER HAS REACHED TIME COUNT
- 03 = CORRESPONDING TIMER A COUNTER HAS REACHED TIME COUNT

Timer B

TIMER B CONTROLSTATUS REGISTER (TBCSR) (0x00B0)

- 00 = CORRESPONDING TIMER B COUNTER HAS REACHED TIME COUNT
- 01 = CORRESPONDING TIMER B COUNTER HAS REACHED TIME COUNT
- 02 = CORRESPONDING TIMER B COUNTER HAS REACHED TIME COUNT
- 03 = CORRESPONDING TIMER B COUNTER HAS REACHED TIME COUNT

TIMER B PRESCALE REGISTER (TAPR) (0x00B4)

- 00 = 1
- 01 = 1
- 02 = 1
- 03 = 1

TIMER B CONTROL REGISTER (TBCR) (0x00B8)

- 00 = CORRESPONDING TIMER B COUNTER HAS REACHED TIME COUNT
- 01 = CORRESPONDING TIMER B COUNTER HAS REACHED TIME COUNT
- 02 = CORRESPONDING TIMER B COUNTER HAS REACHED TIME COUNT
- 03 = CORRESPONDING TIMER B COUNTER HAS REACHED TIME COUNT

Timer C

TIMER C CONTROLSTATUS REGISTER (TCCSR) (0x00C0)

- 00 = CORRESPONDING TIMER C COUNTER HAS REACHED TIME COUNT
- 01 = CORRESPONDING TIMER C COUNTER HAS REACHED TIME COUNT
- 02 = CORRESPONDING TIMER C COUNTER HAS REACHED TIME COUNT
- 03 = CORRESPONDING TIMER C COUNTER HAS REACHED TIME COUNT

TIMER C PRESCALE REGISTER (TAPR) (0x00C4)

- 00 = 1
- 01 = 1
- 02 = 1
- 03 = 1

TIMER C CONTROL REGISTER (TCCR) (0x00C8)

- 00 = CORRESPONDING TIMER C COUNTER HAS REACHED TIME COUNT
- 01 = CORRESPONDING TIMER C COUNTER HAS REACHED TIME COUNT
- 02 = CORRESPONDING TIMER C COUNTER HAS REACHED TIME COUNT
- 03 = CORRESPONDING TIMER C COUNTER HAS REACHED TIME COUNT

Direct Memory Access

DMA MASTER CONTROLSTATUS REGISTER (DMACSR) (0x00D0)

- 00 = DMA CHANNEL 0
- 01 = DMA CHANNEL 1
- 02 = DMA CHANNEL 2
- 03 = DMA CHANNEL 3

DMA MASTER TIMING CONTROL REGISTER (DMACTCR) (0x00D4)

- 00 = 1
- 01 = 1
- 02 = 1
- 03 = 1

DMA MASTER REQUEST COUNTER REGISTER (DMACR) (0x00D8)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

Breakpoints

BREAKPOINT CONTROL REGISTER (BCR) (0x00E0)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

BREAKPOINT ADDRESS REGISTER (BAR) (0x00E4)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

BREAKPOINT MASK REGISTER (BMR) (0x00E8)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

Watchdog Timer

WATCHDOG TIMER CONTROL REGISTER (WDCR) (0x00F0)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

WATCHDOG TIMER TEST REGISTER (WDTSTR) (0x00F4)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

Pulse Width Modulation

PWM CONTROL REGISTER (PWR) (0x0100)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

PWM PERIOD REGISTER (PWRPR) (0x0104)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

PWM DUTY REGISTER (PWRD) (0x0108)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

Parallel Ports

PORT A DATA REGISTERS (PARA) (0x0110)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

PORT A CONTROL REGISTER (PARC) (0x0114)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

PORT A ALTERNATE LOW REGISTERS (PALR) (0x0118)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

Serial Ports

SERIAL PORT A CONTROL REGISTER (SPACR) (0x0120)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

SERIAL PORT A DATA REGISTER (SPADR) (0x0124)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

SERIAL PORT A DIVIDER HIGH REGISTER (SPDHR) (0x0128)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

Write Protect

WRITE PROTECT CONTROL REGISTER (WPCR) (0x0130)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

WRITE PROTECT LOW HIGH REGISTERS (WPLHR) (0x0134)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

WRITE PROTECT SEGMENT REGISTERS (WPSR) (0x0138)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

Real-Time Clock

REAL-TIME CLOCK REGISTER (RTCRR) (0x0140)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

REAL-TIME CLOCK CONTROL REGISTER (RTCCR) (0x0144)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

External I/O

EXTERNAL I/O REGISTER (EIO) (0x0150)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

Slave Port

SLAVE PORT REGISTER (SPR) (0x0160)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

SLAVE PORT STATUS REGISTER (SPSR) (0x0164)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

Network Port B

NETWORK DATA REGISTER (NDR) (0x0170)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

NETWORK CONTROL REGISTER (NCR) (0x0174)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

NETWORK TRANSMIT CONTROL REGISTER (NTSCR) (0x0178)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

Stack Limit Protection

STACK LIMIT CONTROL REGISTER (SLCR) (0x0180)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

STACK LIMIT REGISTER (SLR) (0x0184)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

Quadrature Decoder

QUAD DECODE CONTROL REGISTER (QDCR) (0x0190)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

QUAD DECODE STATUS REGISTER (QDCSR) (0x0194)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

System/User Mode

ENABLE DMA REGISTER (EMAR) (0x01A0)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

ENABLE DMA CONTROL REGISTER (EMCCR) (0x01A4)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

Input Capture

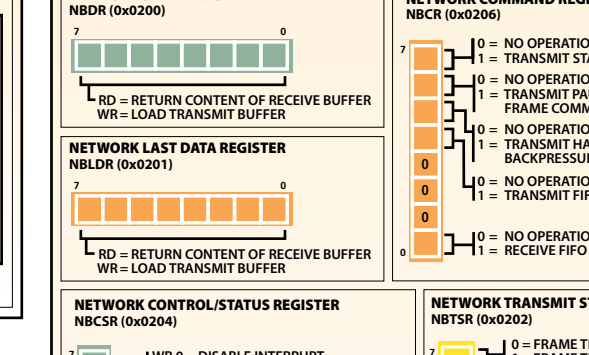
INPUT CAPTURE CONTROL REGISTER (ICCR) (0x01B0)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

INPUT CAPTURE STATUS REGISTER (ICCSR) (0x01B4)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

Block Diagram



Tamper-Protect RAM

TAMPER PROTECT BY BYTE (TPBB) (0x01C0)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

TAMPER PROTECT BY WORD (TPBW) (0x01C4)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

TAMPER PROTECT BY PAGE (TPPB) (0x01C8)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

External I/O

EXTERNAL I/O REGISTER (EIO) (0x0150)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

Slave Port

SLAVE PORT REGISTER (SPR) (0x0160)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

SLAVE PORT STATUS REGISTER (SPSR) (0x0164)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

Network Port B

NETWORK DATA REGISTER (NDR) (0x0170)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

NETWORK CONTROL REGISTER (NCR) (0x0174)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

Network Port B

NETWORK TRANSMIT CONTROL REGISTER (NTSCR) (0x0178)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0

NETWORK RECEIVE CONTROL REGISTER (NRCR) (0x017C)

- 00 = 0
- 01 = 0
- 02 = 0
- 03 = 0