

25.4 Calibration Byte

The ATmega48P/88P/168P/328P has a byte calibration value for the Internal RC Oscillator. This byte resides in the high byte of address 0x000 in the signature address space. During reset, this byte is automatically written into the OSCCAL Register to ensure correct frequency of the calibrated RC Oscillator.

25.5 Page Size

Table 25-11. No. of Words in a Page and No. of Pages in the Flash

Device	Flash Size	Page Size	PCWORD	No. of Pages	PCPAGE	PCMSB
ATmega48P	2K words (4K bytes)	32 words	PC[4:0]	64	PC[10:5]	10
ATmega88P	4K words (8K bytes)	32 words	PC[4:0]	128	PC[11:5]	11
ATmega168P	8K words (16K bytes)	64 words	PC[5:0]	128	PC[12:6]	12
ATmega328P	16K words (32K bytes)	64 words	PC[5:0]	256	PC[13:6]	13

Table 25-12. No. of Words in a Page and No. of Pages in the EEPROM

Device	EEPROM Size	Page Size	PCWORD	No. of Pages	PCPAGE	EEAMSB
ATmega48P	256 bytes	4 bytes	EEA[1:0]	64	EEA[7:2]	7
ATmega88P	512 bytes	4 bytes	EEA[1:0]	128	EEA[8:2]	8
ATmega168P	512 bytes	4 bytes	EEA[1:0]	128	EEA[8:2]	8
ATmega328P	1K bytes	4 bytes	EEA[1:0]	256	EEA[9:2]	9

25.6 Parallel Programming Parameters, Pin Mapping, and Commands

This section describes how to parallel program and verify Flash Program memory, EEPROM Data memory, Memory Lock bits, and Fuse bits in the ATmega48P/88P/168P/328P. Pulses are assumed to be at least 250 ns unless otherwise noted.

25.6.1 Signal Names

In this section, some pins of the ATmega48P/88P/168P/328P are referenced by signal names describing their functionality during parallel programming, see [Figure 25-1](#) and [Table 25-13](#). Pins not described in the following table are referenced by pin names.

The XA1/XA0 pins determine the action executed when the XTAL1 pin is given a positive pulse. The bit coding is shown in [Table 25-15](#).

When pulsing \overline{WR} or \overline{OE} , the command loaded determines the action executed. The different Commands are shown in [Table 25-16](#).