

Table 13. PID controller, error computed within the routine

PID	24 MHz 0 wait state		48 MHz 1 wait state		72 MHz 2 wait states	
	cycle count	time	cycle count	time	cycle count	time
C function	48	2 μ s	52	1.08 μ s	57	0.79 μ s

6.2.2 Fast Fourier transform (FFT)

Table 14. Complex radix 4, 16-bit FFT, coefficients in Flash memory

FFT (ASM funct.)	24 MHz 0 wait state		48 MHz 1 wait state		72 MHz 2 wait states	
	cycle count	time	cycle count	time	cycle count	time
64 points	3847	0.16 ms	4 472	0.093 ms	5 661	0.078 ms
256 points	21 039	0.876 ms	24 964	0.52 ms	31 527	0.437 ms
1024 points	100 180	4.174 ms	114 350	2.382 ms	153 930	2.138 ms

Table 15. Complex radix 4, 16-bit FFT, coefficients in RAM

FFT (ASM funct.)	24 MHz 0 wait state		48 MHz 1 wait state		72 MHz 2 wait states	
	cycle count	time	cycle count	time	cycle count	time
64 points	3 847	0.16 ms	4 025	0.084 ms	4 764	0.066 ms
256 points	21 039	0.876 ms	22 176	0.462 ms	26 065	0.362 ms
1024 points	100 180	4.174 ms	102 057	2.126 ms	127 318	1.768 ms

6.2.3 FIR filter

Table 16. 16-bit, 32-tap FIR filter

FIR (ASM filter)	24 MHz 0 wait state		48 MHz 1 wait state		72 MHz 2 wait states	
	cycle count	time	cycle count	time	cycle count	time
32 samples	3516	146.5 μ s	3525	73.4 μ s	3727	51.76 μ s