

Table 1: Complex multiplies  $\text{Cmult}$  as a function of  $N$  and  $P$ , with  $P_{\text{out}} = N/2$ , the ratio of  $\#\text{multiplies}/N \log_2(N)/\text{Cmult}$ , and  $\text{ratio2}$ .

$N$		$P$									
		2	$2^2$	$2^3$	$2^4$	$2^5$	$2^6$	$2^7$	$2^8$	$2^9$	$2^{10}$
$2^5$ :	#mult	16	32	48	64						
	ratio	5.0	2.5	1.7	1.2						
	ratio2	1.7	1.2	1.0	0.8						
	ratio3	1.3	2.0	3.2	5.3						
$2^6$ :	#mult	32	64	96	128	160					
	ratio	6.0	3.0	2.0	1.5	1.2					
	ratio2	2.0	1.5	1.2	1.0	0.9					
	ratio3	1.3	2.0	3.2	5.3	9.1					
$2^7$ :	#mult	64	128	192	256	320	384				
	ratio	7.0	3.5	2.3	1.8	1.4	1.2				
	ratio2	2.3	1.8	1.4	1.2	1.0	0.9				
	ratio3	1.3	2.0	3.2	5.3	9.1	16.0				
$2^8$ :	#mult	128	256	384	512	640	768	896			
	ratio	8.0	4.0	2.7	2.0	1.6	1.3	1.1			
	ratio2	2.7	2.0	1.6	1.3	1.1	1.0	0.9			
	ratio3	1.3	2.0	3.2	5.3	9.1	16.0	28.4			
$2^9$ :	#mult	256	512	768	1024	1280	1536	1792	2048		
	ratio	9.0	4.5	3.0	2.2	1.8	1.5	1.3	1.1		
	ratio2	3.0	2.2	1.8	1.5	1.3	1.1	1.0	0.9		
	ratio3	1.3	2.0	3.2	5.3	9.1	16.0	28.4	51.2		
$2^{10}$ :	#mult	512	1024	1536	2048	2560	3072	3584	4096	4608	
	ratio	10.0	5.0	3.3	2.5	2.0	1.7	1.4	1.2	1.1	
	ratio2	3.3	2.5	2.0	1.7	1.4	1.2	1.1	1.0	0.9	
	ratio3	1.3	2.0	3.2	5.3	9.1	16.0	28.4	51.2	93.1	
$2^{11}$ :	#mult	1024	2048	3072	4096	5120	6144	7168	8192	9216	10240
	ratio	11.0	5.5	3.7	2.8	2.2	1.8	1.6	1.4	1.2	1.1
	ratio2	3.7	2.8	2.2	1.8	1.6	1.4	1.2	1.1	1.0	0.9
	ratio3	1.3	2.0	3.2	5.3	9.1	16.0	28.4	51.2	93.1	170.7

  

$N$		$P$								
		$2^{11}$	$2^{12}$	$2^{13}$	$2^{14}$	$2^{15}$	$2^{16}$	$2^{17}$	$2^{18}$	$2^{19}$
$2^{12}$ :	#mult	22528								
	ratio	1.1								
	ratio2	0.9								
	ratio3	315.1								
$2^{13}$ :	#mult	45056	49152							
	ratio	1.2	1.1							
	ratio2	1.0	0.9							
	ratio3	315.1	585.1							
$2^{14}$ :	#mult	90112	98304	106496						
	ratio	1.3	1.2	1.1						
	ratio2	1.1	1.0	0.9						
	ratio3	315.1	585.1	1092.3						
$2^{15}$ :	#mult	180224	196608	212992	229376					
	ratio	1.4	1.2	1.2	1.1					
	ratio2	1.2	1.1	1.0	0.9					
	ratio3	315.1	585.1	1092.3	2048.0					
$2^{16}$ :	#mult	360448	393216	425984	458752	491520				
	ratio	1.5	1.3	1.2	1.1	1.1				
	ratio2	1.2	1.1	1.1	1.0	0.9				
	ratio3	315.1	585.1	1092.3	2048.0	3855.1				
$2^{17}$ :	#mult	720896	786432	851968	917504	983040	1048576			
	ratio	1.5	1.4	1.3	1.2	1.1	1.1			
	ratio2	1.3	1.2	1.1	1.1	1.0	0.9			
	ratio3	315.1	585.1	1092.3	2048.0	3855.1	7281.8			
$2^{18}$ :	#mult	1441792	1572864	1703936	1835008	1966080	2097152	2228224		
	ratio	1.6	1.5	1.4	1.3	1.2	1.1	1.1		
	ratio2	1.4	1.3	1.2	1.1	1.1	1.0	0.9		
	ratio3	315.1	585.1	1092.3	2048.0	3855.1	7281.8	13797.1		
$2^{19}$ :	#mult	2883584	3145728	3407872	3670016	3932160	4194304	4456448	4718592	
	ratio	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	
	ratio2	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.9	
	ratio3	315.1	585.1	1092.3	2048.0	3855.1	7281.8	13797.1	26214.4	
$2^{20}$ :	#mult	5767168	6291456	6815744	7340032	7864320	8388608	8912896	9437184	9961472
	ratio	1.8	1.7	1.5	1.4	1.3	1.2	1.2	1.1	1.1
	ratio2	1.5	1.4	1.3	1.2	1.2	1.1	1.1	1.0	1.0
	ratio3	315.1	585.1	1092.3	2048.0	3855.1	7281.8	13797.1	26214.4	49932.2