	Hex	Offset (dec)	32-bit regsiters	Function Select Register			
GPIO Base addres	0x3F200000	0		**store GPIO start address:**	bits 0-2 = GPIO 0	bits 3-5 = GPIO 1	bits 6-8 = GPIO 2
		1	GPIO 0 - 9	ldr r0,=0x3F200000	bits 9-11 = GPIO 3	bits 12-14 = GPIO 4	
		2			bits 15-17 = GPIO 5	bits 18-20 = GPIO 6	bits 21-23 = GPIO 7
		3			bits 24-26 = GPIO 8	bits 27-29 = GPIO 9	
	0x3F200004	4		**Enable Write: to GPIO18 (Lab 7)**	bits 0-2 = GPIO 10	bits 3-5 = GPIO 11	bits 6-8 = GPIO 12
		5	GPIO 10 - 19	mov r1,#1	bits 9-11 = GPIO 13	bits 12-14 = GPIO 14	
		6		lsl r1,#24	bits 15-17 = GPIO 15	bits 18-20 = GPIO 16	bits 21-23 = GPIO 17
function		7		str r1,[r0,#4]	bits 24-26 = GPIO 18	bits 27-29 = GPIO 19	
select	0x3F200008	8		**Enable Read: from GPIO24(pin)**	bits 0-2 = GPIO 20	bits 3-5 = GPIO 21	bits 6-8 = GPIO 22
		9	GPIO 20 - 29	mov r1,#0	bits 9-11 = GPIO 23	bits 12-14 = GPIO 24	
210 //bit order		10		lsl r1,#12	bits 15-17 = GPIO 25	bits 18-20 = GPIO 26	bits 21-23 = GPIO 27
000 = input		11		str r1,[r0,#8]	bits 24-26 = GPIO 28	bits 27-29 = GPIO 29	
001 = output	0x3F20000C	12			bits 0-2 = GPIO 30	bits 3-5 = GPIO 31	bits 6-8 = GPIO 32
010 = Alt F0		13	GPIO 30 - 39		bits 9-11 = GPIO 33	bits 12-14 = GPIO 34	
011 = ALT F1		14			bits 15-17 = GPIO 35	bits 18-20 = GPIO 36	bits 21-23 = GPIO 37
100 = Alt F2		15			bits 24-26 = GPIO 38	bits 27-29 = GPIO 39	
101 = ALT F3	0x3F200010	16			bits 0-2 = GPIO 40	bits 3-5 = GPIO 41	bits 6-8 = GPIO 42
110 = Alt F4		17	GPIO 40 - 49		bits 9-11 = GPIO 43	bits 12-14 = GPIO 44	
111 = ALT F5		18			bits 15-17 = GPIO 45	bits 18-20 = GPIO 46	bits 21-23 = GPIO 47
		19			bits 24-26 = GPIO 8	bits 27-29 = GPIO 49	
	0x3F200014	20		0-7 bits	bits 0-2 = GPIO 50	bits 3-5 = GPIO 51	bits 6-8 = GPIO 52
		21	GPIO 50 - 54	8-15 bits	bits 9-11 = GPIO 53	bits 12-14 = GPIO 54	
		22		16-22 bits			
		23		23-29 bits			
	0x3F200018	24					

This register writes 1 to the GPIO pin

GPIO exec	0x3F20001C	28		**Write 1 to GPIO18 (Lab 7)**	bits 0-7 = GPIO 0-7		
write 1		29	set bit n to turn ON	mov r1,#1	bits 8-15 = GPIO 8-15		
		30	GPIO n	lsl r1,#18	bits 16-23 = GPIO 16-23		
		31		str r1,[r0,#28]	bits 24-31 = GPIO 24-31		
	0x3F200020	32			bits 0-7 = GPIO 32-39		
		33	set bit n to turn ON		bits 8-15 = GPIO 40-47		
		34	GPIO 32+n		bits 16-22 = GPIO 48-54		
		35					
	0x3F200024	36					

This register writes 0 to the GPIO pin

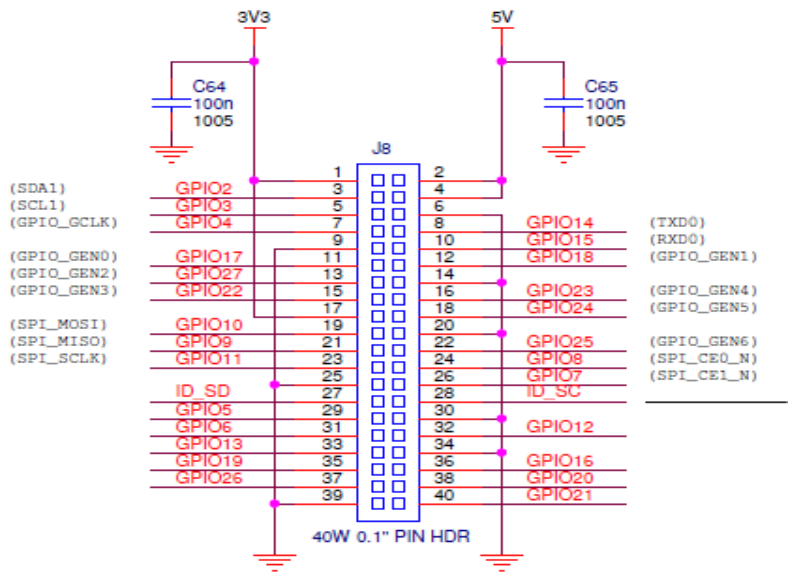
GPIO exec	0x3F200028	40		**Write 1 GPIO18 (Lab 7)**	bits 0-7 = GPIO 0-7		
write 0		41	set bit n to turn OFF	mov r1,#1	bits 8-15 = GPIO 8-15		
		42	GPIO n	lsl r1,#18	bits 16-23 = GPIO 16-23		
		43		str r1,[r0,#40]	bits 24-31 = GPIO 24-31		
	0x3F20002C	44			bits 0-7 = GPIO 32-39		
		45	set bit n to turn OFF		bits 8-15 = GPIO 40-47		
		46	GPIO 32+n		bits 16-22 = GPIO 48-54		
		47					
	0x3F200030	48					

This register contains state of the GPIO pin (if programmed to read)

GPIO exec	0x3F200034	52			bits 0-7 = GPIO 0-7		
read		53	read bit n to detect		bits 8-15 = GPIO 8-15		
		54	GPIO n		bits 16-23 = GPIO 16-23		
		55			bits 24-31 = GPIO 24-31		
	0x3F200038	56			bits 0-7 = GPIO 32-39		
		57	read bit n to detect		bits 8-15 = GPIO 40-47		
		58	GPIO 32+n		bits 16-22 = GPIO 48-54		
		59					
	0x3F20004C	60					

GPIO	GPIO function enable bit (lsl)	GPIO function enable offset (add to 0x20200000)	R/W GPIO bit (lsl)	R/W GPIO offset (add to register offset)
0	0	0	0	0
1	3	0	1	0
2	6	0	2	0
3	9	0	3	0
4	12	0	4	0
5	15	0	5	0
6	18	0	6	0
7	21	0	7	0
8	24	0	8	0
9	27	0	9	0
10	0	4	10	0
11	3	4	11	0
12	6	4	12	0
13	9	4	13	0
14	12	4	14	0
15	15	4	15	0
16	18	4	16	0
17	21	4	17	0
18	**24**	**4**	**18**	0
19	27	4	19	0
20	0	8	20	0
21	3	8	21	0
22	6	8	22	0
23	9	8	23	0
24	12	8	24	0
25	15	8	25	0
26	18	8	26	0
27	21	8	27	0
28	24	8	28	0
29	27	8	29	0
30	0	12	30	0
31	3	12	31	0
32	6	12	0	4
33	9	12	1	4
34	12	12	2	4
35	**15**	**12**	**3**	**4**
36	18	12	4	4
37	21	12	5	4
38	24	12	6	4
39	27	12	7	4
40	0	16	8	4
41	3	16	9	4
42	6	16	10	4
43	9	16	11	4
44	12	16	12	4
45	15	16	13	4
46	18	16	14	4
47	**21**	**16**	**15**	**4**
48	24	16	16	4
49	27	16	17	4
50	0	20	18	4
51	3	20	19	4
52	6	20	20	4
53	9	20	21	4
54	12	20	22	4

RPi Model B+, 2B, 3B



GPIO EXPANSION