DEVICE	ombo II-DLD-Bas	XILIINX Module		
CLOCK	FPGA_CLK1	B6		
	FPGA_CLK2	C15		
	FPGA_CLK3	P15		
	FPGA_CLK4	M8		
CLOCK(FPGA)	USER_Clock1	D12		
	USER_Clock2	U18		
LED	LED_D1	L4		
	LED_D2	M4		
	LED_D3	M2		
	LED_D4	N7		
	LED_D5	M7		
	LED_D6	M3		
	LED_D7	M1		
	LED_D8	N5		
7-Segment	SEG_A	P1		
	SEG_B	P3		
	SEG_C	P7		
	SEG_D	N3		
	SEG_E	T5		
	SEG_F	R2		
	SEG_G	R4		
	SEG_DP	R6		
8 Array 7-Segment	AR_SEG_A	F1		
	AR_SEG_B	F5		
	AR_SEG_C	E2		
	AR_SEG_D	E4		
	AR_SEG_E	J1		
	AR_SEG_F	J3		
	AR_SEG_G	J7		
	AR_SEG_DP	H2		
	AR_SEG_S0	H4		
	AR_SEG_S1	H6		
	AR_SEG_S2	G1		
	AR_SEG_S3	G3		
	AR_SEG_S4	L6		
	AR_SEG_S5	K1		
	AR_SEG_S6	K3		
	AR_SEG_S7	K5		
Button Switch	KEY01	K4	KEY PAD	
	KEY02	N8		
	KEY03	N4		
	KEY04	N1		
	KEY05	P6		
	KEY06	N6	r03	N6
	KEY07	L5	r02	L5
	KEY08	J2	r01	J2
	KEY09	K2	r00	K2
	KEY10	L7	c02	L7
	KEY11	L1	c01	L1
	KEY12	K6	c00	K6
DIP Switch	DIP_SW1	Y1		
	DIP_SW2	W3		
	DIP_SW3	U2		
	DIP_SW4	T1		
	DIP_SW5	W4		
	DIP_SW6	W1		

	DIP_SW7	V4
	DIP_SW8	U4

	F_LED1_BLUE	U3		F_LED1_RED	T2
	F_LED1_GREEN	U5		F_LED2_RED	U1
	F_LED1_RED	T2		F_LED3_RED	P2
	F_LED2_BLUE	W2		F_LED4_RED	R3
	F_LED2_GREEN	V1		F_LED1_GREE	U5
	F_LED2_RED	U1		F_LED2_GREE	V1
Full Color LED	F_LED3_BLUE	R5		F_LED3_GREE	R7
	F_LED3_GREEN	R7		F_LED4_GREE	T6
	F_LED3_RED	P2		F_LED1_BLUE	U3
	F_LED4_BLUE	T3		F_LED2_BLUE	W2
	F_LED4_GREEN	T6		F_LED3_BLUE	R5
	F_LED4_RED	R3		F_LED4_BLUE	T3

	TLCD_D0	A4
	TLCD_D1	B2
	TLCD_D2	C3
	TLCD_D3	D4
	TLCD_D4	A2
Text LCD	TLCD_D5	C5
	TLCD_D6	C1
	TLCD_D7	D1
	TLCD_E	A6
	TLCD_RS	G6
	TLCD_RW	D6

PIEZO	PIEZO	Y21

Servo Motor	SERVO_CTRL	AA22

EEPROM	I2C_CLK	W21
	I2C_DATA	V21

	SPI_AD	H3
AD Convertor	SPI_DIN	H5
	SPI_DOUT	J6
	SPI_SCK	H7

	DAC_A_B	G2
	DAC_CSN	E1
	DAC_LDACN	F4
	DAC_WRN	G4
	DAC_D0	E3
	DAC_D1	E5
DA Converter	DAC_D2	D2
	DAC_D3	D5
	DAC_D4	C2
	DAC_D5	C4
	DAC_D6	B1
	DAC_D7	B3

	SRAM_CSN	N20
	SRAM_OEN	L21
	SRAM_WEN	U17
	SRAM_A[0]	L20
	SRAM_A[1]	L22
	SRAM_A[2]	M17
	SRAM_A[3]	M18
	SRAM_A[4]	N18
	SRAM_A[5]	W22
	SRAM_A[6]	V22

		SRAM_A[7]	V20
		SRAM_A[8]	V18
		SRAM_A[9]	U20
		SRAM_A[10]	V19
		SRAM_A[11]	U22
		SRAM_A[12]	U19
		SRAM_A[13]	T21
		SRAM_A[14]	T19
	SRAM	SRAM_A[15]	L19
		SRAM_A[16]	L16
		SRAM_A[17]	K19
		SRAM_D[0]	P17
		SRAM_D[1]	P21
		SRAM_D[2]	R16
		SRAM_D[3]	R18
		SRAM_D[4]	R20
		SRAM_D[5]	T17
		SRAM_D[6]	T20
		SRAM_D[7]	T22
		SRAM_D[8]	T16
		SRAM_D[9]	R19
		SRAM_D[10]	R17
		SRAM_D[11]	P22
		SRAM_D[12]	P20
		SRAM_D[13]	P16
		SRAM_D[14]	N19
		SRAM_D[15]	M16
		Step Sensor	Y19
		STEP_A	Y20
	Step Motor	STEP_AN	AA20
		STEP_B	Y22
		STEP_BN	AA21
	USB to Serial	USB_TXD0	F6
		USB_RXD0	C6
	UART	UART_TXD1	A3
		UART_RXD1	A5
		BDIO00	F8
		BDIO01	E8
		BDIO02	A7
		BDIO03	G8
		BDIO04	D7
		BDIO05	B7
		BDIO06	G7
		BDIO07	F7
	BreadBoard I/O	BDIO08	C8
		BDIO09	D8
		BDIO10	C9
		BDIO11	B8
		BDIO12	A9
		BDIO13	B9
		BDIO14	A10
		BDIO15	B10
		S_RED	B13
		W_RED	G14
		E_RED	C17
		N_RED	C12
		S_YELLOW	L18

신호등 모듈 (확장 커넥터)		
	W_YELLOW	A14
	E_YELLOW	C18
	N_YELLOW	D13
	S_LEFT	F15
	W_LEFT	D15
	E_LEFT	C19
신호등 모듈 (확장 커넥터)	N_LEFT	F10
	S_GREEN	E16
	W_GREEN	C16
	E_GREEN	A20
	N_GREEN	E11
	WALK_S_GREEN	E19
	WALK_W_GREEN	F12
	WALK_E_GREEN	A16
	WALK_N_GREEN	G11
	WALK_S_RED	A19
	WALK_W_RED	G13
	WLAK_E_RED	E18
	WALK_N_RED	C11

확장 커넥터		
	EXT[0]	G10
	EXT[1]	C10
	EXT[2]	F11
	EXT[3]	D11
	EXT[4]	A11
	EXT[5]	E12
	EXT[6]	A12
	EXT[7]	F13
	EXT[8]	C13
	EXT[9]	A13
	EXT[10]	F14
	EXT[11]	B14
	EXT[12]	G15
	EXT[13]	E15
	EXT[14]	B15
	EXT[15]	D16
	EXT[16]	B16
	EXT[17]	E17
	EXT[18]	A17
	EXT[19]	D18
	EXT[20]	A18
	EXT[21]	D19
	EXT[22]	B19
	EXT[23]	B20
	EXT[24]	A21
	EXT[25]	B22
	EXT[26]	C22
	EXT[27]	D21
	EXT[28]	F17
	EXT[29]	F21
	EXT[30]	G16
	EXT[31]	G20
	EXT[32]	G22
	EXT[33]	H17
	EXT[34]	H19
	EXT[35]	H21
	EXT[36]	J17
	EXT[37]	J20
	EXT[38]	J22
	EXT[39]	K17
	EXT[40]	F10
확장 커넥터	EXT[41]	G11
	EXT[42]	E11

EX1

	1	2	
+5V	1	2	+5V
−	3	4	−
EXT40	5	6	EXT41
EXT42	7	8	EXT43
EXT44	9	10	EXT45
EXT46	11	12	EXT47
EXT48	13	14	EXT49
EXT50	15	16	EXT51
EXT52	17	18	EXT53
EXT54	19	20	EXT55
EXT56	21	22	EXT57
EXT58	23	24	EXT59
EXT60	25	26	EXT61
EXT62	27	28	EXT63
EXT64	29	30	EXT65
EXT66	31	32	EXT67
EXT68	33	34	EXT69
EXT70	35	36	EXT71
EXT72	37	38	EXT73
EXT74	39	40	EXT75
EXT76	41	42	EXT77
EXT78	43	44	EXT79
EXT80	45	46	EXT81
EXT82	47	48	EXT83
GND	49	50	GND

EX2

	1	2	
+5V	1	2	+5V
−	3	4	−
EXT0	5	6	EXT1
EXT2	7	8	EXT3
EXT4	9	10	EXT5
EXT6	11	12	EXT7
EXT8	13	14	EXT9
EXT10	15	16	EXT11
EXT11	17	18	EXT13
EXT14	19	20	EXT15
EXT16	21	22	EXT17
EXT18	23	24	EXT19
EXT20	25	26	EXT21
EXT22	27	28	EXT23
EXT24	29	30	EXT25
EXT26	31	32	EXT27
EXT28	33	34	EXT29
EXT30	35	36	EXT31
EXT32	37	38	EXT33
EXT34	39	40	EXT35
EXT36	41	42	EXT37
EXT38	43	44	EXT39
GND	45	46	GND
GND	47	48	GND
GND	49	50	GND

EX1

	1	2	
+5V	1	2	+5V
+12V	3	4	+12V
F10	5	6	G11
E11	7	8	C11
F12	9	10	C12
G13	11	12	D13
B13	13	14	G14
L18	15	16	A14

EX2

	1	2	
+5V	1	2	+5V
+12V	3	4	+12V
G10	5	6	C10
F11	7	8	D11
A11	9	10	E12
A12	11	12	F13
C13	13	14	A13
F14	15	16	B14

Signal	Pin
EXT[43]	C11
EXT[44]	F12
EXT[45]	C12
EXT[46]	G13
EXT[47]	D13
EXT[48]	B13
EXT[49]	G14
EXT[50]	L18
EXT[51]	A14
EXT[52]	F15
EXT[53]	D15
EXT[54]	E16
EXT[55]	C16
EXT[56]	A16
EXT[57]	C17
EXT[58]	E18
EXT[59]	C18
EXT[60]	E19
EXT[61]	C19
EXT[62]	A19
EXT[63]	A20
EXT[64]	B21
EXT[65]	C20
EXT[66]	D20
EXT[67]	E22
EXT[68]	F18
EXT[69]	F19
EXT[70]	F20
EXT[71]	F22
EXT[72]	G17
EXT[73]	G21
EXT[74]	H16
EXT[75]	H18
EXT[76]	H20
EXT[77]	J16
EXT[78]	J19
EXT[79]	J21
EXT[80]	K16
EXT[81]	K18
EXT[82]	K22
EXT[83]	–

F15	17	18	D15	G15	17	18	E15
E16	19	20	C16	B15	19	20	D16
A16	21	22	C17	B16	21	22	E17
E18	23	24	C18	A17	23	24	D18
E19	25	26	C19	A18	25	26	D19
A19	27	28	A20	B19	27	28	B20
B21	29	30	C20	A21	29	30	B22
D20	31	32	E22	C22	31	32	D21
F18	33	34	F19	F17	33	34	F21
F20	35	36	F22	G16	35	36	G20
G17	37	38	G21	G22	37	38	H17
H16	39	40	H18	H19	39	40	H21
H20	41	42	J16	J17	41	42	J20
J19	43	44	J21	J22	43	44	K17
K16	45	46	K18	GND	45	46	GND
K22	47	48	–	GND	47	48	GND
GND	49	50	GND	GND	49	50	GND

Connector (34) — top left

Signal	Ball	Odd	Even	Ball	Signal
3V3		1	2		3V3
3V3		3	4		3V3
3V3		5	6		3V3
-		7	8		-
1 BDIO_14/TDI	A10	9	10	B10	BDIO_15/TRST
2 BDIO_12/TCK	A9	11	12	B9	BDIO_13/TMS
3 BDIO_10/TDO	C9	13	14	B8	BDIO_11/RTCK
4 BDIO_8	C8	15	16	D8	BDIO_9/SRST
5 BDIO_01	E8	17	18	F8	BDIO_00
6 BDIO_03	G8	19	20	A7	BDIO_02
7 BDIO_05	B7	21	22	D7	BDIO_04
8 BDIO_07	F7	23	24	G7	BDIO_06
9 TLCD0_E	A6	25	26	C6	XURXD0
10 TLCD0_RW	D6	27	28	F6	XUTXD0
11 TLCD0_RS	G6	29	30	A5	XURXD1
12 GND		31	32		GND
13 TLCD_DD0	A4	33	34	A3	XUTXD1
14 TLCD_DD4	A2	35	36	B3	P_DB7
15 TLCD_DD1	B2	37	38	B1	P_DB6
16 TLCD_DD5	C5	39	40	C4	P_DB5
17 TLCD_DD2	C3	41	42	C2	P_DB4
18 TLCD_DD6	C1	43	44	D5	P_DB3
19 TLCD_DD3	D4	45	46	D2	P_DB2
20 TLCD_DD7	D1	47	48	E5	P_DB1
21 SEGA_D	E4	49	50	E3	P_DB0
22 SEGA_C	E2	51	52	E1	P_CSN
23 SEGA_B	F5	53	54	F4	P_LDACN
24 SEGA_A	F1	55	56	G4	P_WRN
25 SEGA_SCAN3	G3	57	58	G2	P_A/B
26 SEGA_SCAN2	G1	59	60	H7	SPI_SCK
27 GND		61	62		GND
28 SEGA_SCAN1	H6	63	64	H5	SPI_DIN
29 SEGA_SCAN0	H4	65	66	H3	SPI_AD
30 SEGA_DP	H2	67	68		-
31 SEGA_G	J7	69	70	J6	SPI_DOUT
32 SEGA_F	J3	71	72	J2	KEY8
33 SEGA_E	J1	73	74	K6	KEY12
34 SEGA_SCAN7	K5	75	76	K4	KEY1
35 SEGA_SCAN6	K3	77	78	K2	KEY9
36 SEGA_SCAN5	K1	79	80	L7	KEY10

Connector (33) — top middle

Signal	Ball	Odd	Even	Ball	Signal
	AB21	1	2		GND
	AB20	3	4		GND
CLK_OUT2		5	6		
		7	8		GND
CLK_OUT1		9	10		
	Y18	11	12	AB19	
	AA17	13	14	AB18	
	W17	15	16	AA18	
	AA16	17	18	AB17	
	V16	19	20	Y17	
	AA15	21	22	AB16	
	V15	23	24	W16	
	T15	25	26	U16	
	AA14	27	28	W15	
	W14	29	30	U15	
	AB13	31	32	AB14	
	Y13	33	34	Y14	
	AB12	35	36	V14	
GND		37	38		GND
	W12	39	40	AA13	
	U12	41	42	V13	
	AA11	43	44	Y12	
	W11	45	46	V12	
	AA10	47	48	AB11	
	AA9	49	50	Y11	
	Y8	51	52	AB10	
	V8	53	54	AB9	
	AB7	55	56	AA8	
	Y7	57	58	W8	
	V7	59	60	U8	
	AA6	61	62	AA7	
	V6	63	64	W7	
	Y5	65	66	AB6	
-		67	68		GND
	V5	69	70	Y6	
	Y4	71	72	AB5	
	AA3	73	74	W5	
	AB2	75	76	AB4	
	AA1	77	78	AB3	
	AA2	79	80	Y3	

Connector — top right (EXT1–EXT74)

Signal	Ball	Odd	Even	Ball	Signal
3V3		1	2		3V3
3V3		3	4		3V3
3V3		5	6		3V3
-		7	8		-
EXT1	G10	9	10	F10	EXT41
EXT2	C10	11	12	G11	EXT42
EXT3	F11	13	14	E11	EXT43
EXT4	D11	15	16	C11	EXT44
EXT5	A11	17	18	F12	EXT45
EXT6	E12	19	20	C12	EXT46
EXT7	A12	21	22	G13	EXT47
EXT8	F13	23	24	D13	EXT48
EXT9	C13	25	26	B13	EXT49
EXT10	A13	27	28	G14	EXT50
EXT11	F14	29	30	E14	EXT51
GND		31	32		GND
EXT12	B14	33	34	A14	EXT52
EXT13	G15	35	36	F15	EXT53
EXT14	E15	37	38	D15	EXT54
EXT15	B15	39	40	E16	EXT55
EXT16	D16	41	42	C16	EXT56
EXT17	B16	43	44	A16	EXT57
EXT18	E17	45	46	C17	EXT58
EXT19	A17	47	48	E18	EXT59
EXT20	D18	49	50	C18	EXT60
EXT21	A18	51	52	E19	EXT61
EXT22	D19	53	54	C19	EXT62
EXT23	B19	55	56	A19	EXT63
EXT24	B20	57	58	A20	EXT64
EXT25	A21	59	60	B21	EXT65
GND		61	62		GND
EXT26	B22	63	64	C20	EXT66
EXT27	C22	65	66	D20	EXT67
EXT28	D21	67	68	E22	EXT68
EXT29	F17	69	70	F18	EXT69
-		71	72	F19	EXT70
-		73	74	F20	EXT71
EXT30	F21	75	76	F22	EXT72
EXT31	G16	77	78	G17	EXT73
EXT32	G20	79	80	G21	EXT74

Connector (24) — bottom left

Signal	Ball	Odd	Even	Ball	Signal
1 SEGA_SCAN4	L6	1	2	L5	KEY7
2 CLED_D1	L4	3	4	L1	KEY11
3 CLED_D5	M7	5	6		MF_TDI
4 CLED_D2	M4	7	8		MF_TDO
5 CLED_D6	M3	9	10		MF_TCK
6 GND		11	12		GND
7 CLED_D3	M2	13	14		MF_TMS
8 CLED_D7	M1	15	16	N8	KEY2
9 CLED_D4	N7	17	18	N6	KEY6
10 CLED_D8	N5	19	20	N4	KEY3
11 SEG_D	N3	21	22	N1	KEY4
12 SEG_C	P7	23	24	P6	KEY5
13 SEG_B	P3	25	26	P2	3LED3_RED
14 SEG_A	P1	27	28	R7	3LED3_GREEN
15 SEG_DP	R6	29	30	R5	3LED3_BLUE
16 SEG_G	R4	31	32	R3	3LED4_RED
17 SEG_F	R2	33	34	T6	3LED4_GREEN
18 SEG_E	T5	35	36	T3	3LED4_BLUE
19 -		37	38	T2	3LED1_RED
20 DIPSW4	T1	39	40	U5	3LED1_GREEN
21 GND		41	42		GND
22 DIPSW8	U4	43	44	U3	3LED1_BLUE
23 DIPSW3	U2	45	46	U1	3LED2_RED
24 DIPSW7	V4	47	48	V1	3LED2_GREEN
25 DIPSW5	W4	49	50		-
26 DIPSW2	W3	51	52	W2	3LED2_BLUE
27 DIPSW6	W1	53	54	Y1	DIPSW1
GND		55	56		GND
GND		57	58		GND
GND		59	60		GND
GND		61	62		GND
GND		63	64		GND
		65	66		
		67	68		
		69	70		
		71	72		
		73	74		
		75	76		
		77	78		
		79	80		

(24) ... (20)

Bottom-middle block:

CLK_OUT1	P5	M8
CLK_OUT2	B6	C15

Connector — bottom right

Signal	Ball	Odd	Even	Ball	Signal		
EXT33	G22	1	2	H16	EXT75		
EXT34	H17	3	4	H18	EXT76		
EXT35	H19	5	6	H20	EXT77		
EXT36	H21	7	8	J16	EXT78		
EXT37	J17	9	10	J19	EXT79		
GND		11	12		GND		
EXT38	J20	13	14	J21	EXT80		
EXT39	J22	15	16	K16	EXT81		
EXT40	K17	17	18	K18	EXT82		
RAM1_A17	K19	19	20	K22	EXT83		
RAM1_A16	L16	21	22	L18	EXT84	34	38
RAM1_A15	L19	23	24	L20	RAM1_A00	33	42
RAM_OE1	L21	25	26	L22	RAM1_A01	24	49
RAM_D15	M16	27	28	M17	RAM1_A02	20	48
-		29	30	M18	RAM1_A03	84	50
-		31	32	N18	RAM1_A04	18	49
RAM_D14	N19	33	34	N20	RAM_CS1	16	49
RAM_D13	P16	35	36	P17	RAM_D00	3	
RAM_D12	P20	37	38	P21	RAM_D01	9	
RAM_D11	P22	39	40	R16	RAM_D02	241	325
GND		41	42		GND		
RAM_D10	R17	43	44	R18	RAM_D03		
RAM_D09	R19	45	46	R20	RAM_D04		
RAM_D08	T16	47	48	T17	RAM_D05		
RAM1_A14	T19	49	50	T20	RAM_D06		
RAM1_A13	T21	51	52	T22	RAM_D07		
		53	54	U17	RAM_WE1		
GND		55	56		GND		
GND		57	58		GND		
RAM1_A12	U19	59	60	U20	RAM1_A09		
RAM1_A11	U22	61	62	V18	RAM1_A08		
RAM1_A10	V19	63	64	V20	RAM1_A07		
I2C_DATA	V21	65	66	V22	RAM1_A06		
I2C_CLK	W21	67	68	W22	RAM1_A05		
MOTUR_COUNT	Y19	69	70	Y20	STEP_A		
PIEZO	Y21	71	72	Y22	STEP_B		
GND		73	74	AA20	STEP_/A		
GND		75	76	AA21	STEP_/B		
GND		77	78	AA22	SERVO_CTRL		
GND		79	80		GND		