

CONFIDENTIAL

MITSUBISHI DIGITAL COLOR PRINTER  
I/F PROTOCOL SPECIFICATION  
MODEL: CP-D80DW

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MITSUBISHI ELECTRIC CORPORATION

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Prepared by

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Approved by

MITSUBISHI ELECTRIC CORPORATION  
KYOTO WORKS

Record of Revision		
Revision Date	Change Mark	Notes

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1. OUTLINE SPECIFICATIONS

1.1 USB I/F SPECIFICATION

1.1.1 CONNECTOR PROFILE

Compliant with USB Ver.2.0, Type-B

1.1.2 SIGNAL LEVEL

Compliant with USB Ver.2.0

1.1.3 DATA TRANSFER METHOD

Compliant with USB Ver.2.0

1.1.4 PIN ASSIGNMENT

[1pin] VBUS  
 [2pin] D-  
 [3pin] D+  
 [4pin] GND  
 [Shell] Shield

1.2 ID LIST

USB: Device Descriptor, Device ID is shown below;

MODEL	Device Descriptor		Device ID				
	idVender	idProduct	MFG	CMD	MDL	CLS	DES
CP-D80DW	06D3h	3B36h	'MITSUBISHI'	'MEL'	'CPD80D'	'PRINTER'	'MITSUBISHI CPD80D'

2.TRANSFER / CONTROL COMMANDS

		supported in Power Save mode																						
2.1	IMAGE DATA TRANSFER and PRINT	NO	ESC	Z	T	Code	JOB-ID (U)*1	JOB-ID (L)*1	header(506byte)*2				Data1 (U)	Data1 (L)	...	DataN (U)	DataN (L)							
			1Bh	5Ah	54h	01h	xxh	xxh	xxh	...	xxh	Image Data *3												
2.2 JOB STATUS																								
2.2.1	JOB STATUS REQUEST (1)a JOB-ID information (2)All JOB-ID information	YES	ESC	V	1	MODE	JOB-ID (U)	JOB-ID (L)																
			1Bh	56h	31h	30h	xxh	xxh																
2.2.2	JOB STATUS ACQUISITION MODE (1)a JOB-ID information (2)All JOB-ID information	YES	NESC	V	1	MODE	JOB-ID (U)	JOB-ID (L)	Mecha No.	Job status *4				Memory*5	Low *6 -power	Mecha Status *7		Temperature *8	Error Status *9			reserved (6byte)		
			E4h	56h	31h	30h	xxh	xxh	00h	40h	xxh	xxh	xxh	xxh	xxh	xxh	xxh	xxh	xxh	xxh	xxh	-		
2.3 PRINTER STATUS																								
2.3.1	PRINTER STATUS REQUEST	YES	ESC	V	2	MODE	Information of 1000 jobs starting with the latest job.																	
			1Bh	56h	32h	31h																		
2.3.2	PRINTER STATUS ACQUISITION	YES	NESC	V	2	MODE	Memory*5	Low *6 -power	reserved (58byte)	FW version (40byte)*10	reserved (24byte)	Mecha Status *7	Temperature *8	Error Status *9	reserved (10byte)	ink ribbon Status *11	reserved (38byte)							
			E4h	56h	32h	31h			-	xxh	...	xxh	-	(Mecha Status/Temperature/Error Status/reserved)										
2.4 MEMORY STATUS																								
2.4.1	MEMORY STATUS REQUEST	NO	ESC	V	3	dummy	Horizontal Pixels	Vertical Pixels	matte *12	dummy														
			1Bh	56h	33h	00h	xxh	xxh	xxh	xxh	xx	00h												
2.4.2	MEMORY STATUS ACQUISITION	NO	NESC	V	3	Memory Check	Size Check	reserved																
			E4h	56h	33h	00h 01h FFh	00h 01h	01h																
2.5	Job Cancel	NO	ESC	D	JOB-ID (U)	JOB-ID (L)																		
			1Bh	44h	xxh	xxh																		
2.6	Wake-Up (Low-power→Standard)	YES	ESC	E	W	U																		
			1Bh	45h	57h	55h																		

\*Memory Check  
00h :memory free  
01h :memory full  
FFh :no check because of unsupported size  
\*Size Check  
00h :supported  
01h :unsupported

2.1.IMAGE DATA TRANSFER and PRINT

\*1 :Job-ID

set JOB-ID

0x0001h -0xFFFFh

\*2 :header

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	
0000	ESC	Z	T	Code	JOB-ID (U)	JOB-ID (L)	reserved										
	1Bh	5Ah	54h	01h	xxh	xxh											
0010	YMC size *2-1				OP size *2-1		Speed	reserved									
	X dots	Y dots			X dots	Y dots	*2-2										
0020	mecha-mode	reserved						OP	OP mode	reserved							
	01h						*2-3	*2-3									
0030	MultiCut	reserved						reserved									
	*2-4																
...	reserved																
01F0	reserved																

\*2-1:YMC size,OP size

Size	YMC size				OP size			
	X dots		Y dots		X dots		Y dots	
13x13(5x5")	1568	620h	1524	5F4h	1568	620h	1536	600h
13x18(5x7")	1568	620h	2128	850h	1568	620h	2140	85Ch
10x15(4x6")	1864	748h	1228	4cch	1864	748h	1240	4d8h
15x15(6x6")	1864	748h	1820	71Ch	1864	748h	1832	728h
15x20(6x8")	1864	748h	2422	976h	1864	748h	2434	982h
5x15(2x6") x2 for MultiCutType5	1864	748h	1228	4cch	1864	748h	1240	4d8h
10x15(4x6")x2 for MultiCutType1	1864	748h	2730	aaah	1864	748h	2742	ab6h

OP size: Only use for Matte OP is set

\*2-2 :Speed

00h	Fine (default)	<=Correspond to gloss OP mode
03h	Super Fine	
04h	Ultra Fine	

\*2-3-1:OP

00h	OP print ON
-----	-------------

\*2-3-2:OP mode

00h	gloss OP (default)	<=Correspond to Super Fine or Ultra Fine speed
01h	Reserved (Do not use)	
02h	Matte OP	

\*2-4:MultiCut

00h	OFF	<=Correspond to 10x15(4x6")x2
01h	MultiCut Type1	
05h	MultiCut Type5	

refer to ex.MultiCut

\*3: Image Data

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
0000	Yellow Image Data + dummy (total:512*n)															
0010																
...																
512*n-16																
512*n	Magenta Image Data + dummy (total:512*n)															
...																
512*2n-16																
512*2n																
...	Cyan Image Data + dummy (total:512*n)															
512*3n-16																
512*3n																
...																
...	Matte OP Image Data + dummy (total:512*m) *Only use for Matte OP is set															
512*(3n+m)-16																
...																
...																

data size	for YMC			for Matte OP		
	Yellow/Mgenta/Cyan Image Data	dummy	total/1color (512*n)	Matte OP Image Data	dummy	total/1color (512*m)
13x13(5x5")	YMC size X dots * Y dots *2	256	4779520	OP size X dots * Y dots *2	0	4816896
13x18(5x7")		0	6673408		256	6711296
10x15(4x6")		320	4578304		128	4622848
15x15(6x6")		64	6785024		384	6830080
15x20(6x8")		416	9029632		224	9074176
5x15(2x6") x2 for MultiCutType5		320	4578304		128	4622848
10x15(4x6")x2 for MultiCutType1		96	10177536		416	10222592

2.2.2.JOB STATUS ACQUISITION MODE

\*4 : Job Status

DATA			Status	Note
00h	00h	00h	No Job	—
10h	00h	00h	During data transfer	—
20h	00h	00h	Queue for printing	Pending print job in the printer memory
50h	10h	00h	During printing	During media loading
	20h	00h		Media loading ends / before Y print
	30h	00h		During Y print
	40h	00h		Swing Backward / before M print
	50h	00h		During M print
	60h	00h		Swing Backward / before C print
	70h	00h		During C print
	80h	00h		Swing Backward / before OP print
	90h	00h		During OP print
	A0h	00h		During paper ejection
80h	00h	00h	Job end	Normal end
	01h	xxh	(Error during printing)	Status showing error information reported when the error occurred. (Refer to Error code list)
	~	xxh		
	7Fh	xxh		
	80h	00h	Header Error	Cannot print due to out-of-spec-print size., etc
		10h	(Image data was not received successfully)	No memory space
	90h	00h	End before printing	Wrong media size mismatching of media size and data
		10h	(Image data was received successfully)	Previous job ended with error
	A0h	00h	Interruption (During data transfer)	Premature ending due to time-out etc.
		10h		Job end due to CANCEL command
	20h	Disconnection		

\*5 :Memory Status

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
MEM-1	MEM-2	MEM-3	MEM-4	1	1	1	1

bit	note
0	memory free
1	memory being used

\*6: Low-power Status

DATA	note
00h	standard
40h	Low-power status

\*7: Mecha Status

DATA	note	
00h	00h	Normal condition
20h	00h	During printing
30h	00h	During media loading
50h	00h	During Feed&Cut
80h	00h	During initialization

\*8 :Temperature Status

DATA	Note
00h	Within temperature range for printing
40h	During Pre-heating
80h	During Cooling

\*9 :Error Status

Refer to Error code list

2.3.2 PRINTER STATUSACQUISITION

\*10:FW version

FW version	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8		
DATA	FW version (M)						FW sum(M)		reserved									
DATA	ASCII CODE								xxh	xxh								
DATA	reserved								FW version (T)						FW sum(T)			
DATA	FW version (F)						FW sum (F)		ASCII CODE								xxh	xxh
DATA	ASCII CODE								xxh	xxh								

\*11:Ink Ribbon Status

Ink ribbon	Brand Code	Media Type	reserved	reserved	Total	Remain	reserved	reserved
13x18(5x7")	FFh	04h	-	-	00E6h	xxxxh	-	-
15x20(6x8")	FFh	0Fh	-	-	0190h	xxxxh	-	-

2.4.1 MEMORY STATUS REQUEST

\*12:Matte

00h	gloss OP
80h	Matte OP (When matte OP image sending)

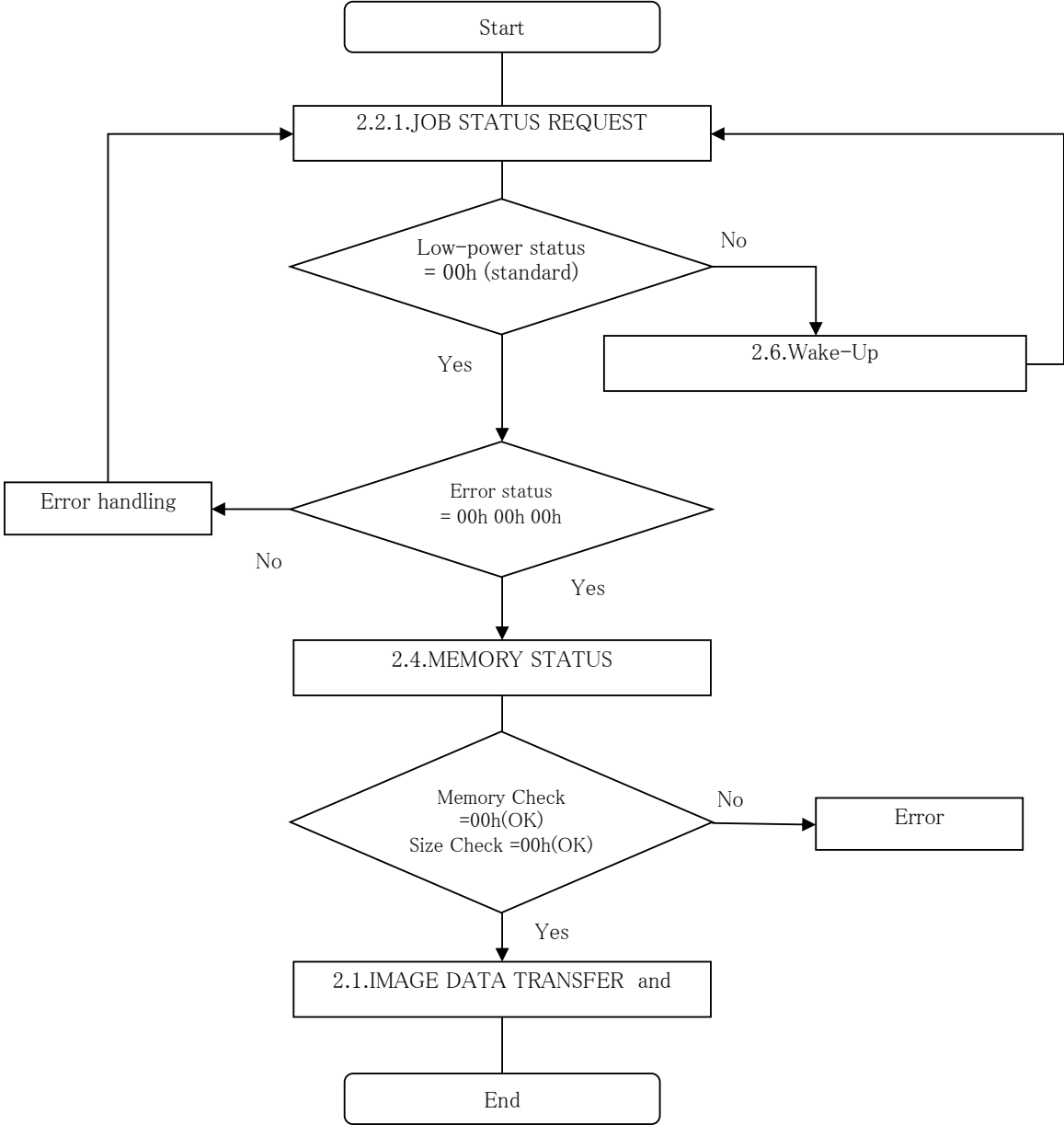


ERROR CODE

Priority	Timing	Mode	Details	LED			USB error info (HEX)			Error recovery condition
				POWER Green	Alarm	MEDIA	data0	data1	data2	
Low		Standby without error		●	●	●	—	—	—	
	When printing starts	Pre-heating		◎	●	●	—	—	—	
	When printing starts	Over heat		◎	●	●	—	—	—	
	Standby/ When printing starts	No paper strip bin attached		○	◎	●	1	6	6	Attach Paper strip bin
	Power ON/ Printing Unit Close	No Ribbon (No RFID detected)		○	●	○	2	2	2	Load Ribbon
	Power ON/ Printing Unit Close	No Paper		○	●	○	3	1	1	Load Paper
	Power ON/ Printing Unit Close	Combination error of Ribbon and Paper		○	●	◎	4	3	4	Change Ribbon or Paper
	Power ON/ Printing Unit Close	Ribbon Count End (RFID)		○	●	○	5	2	2	Load Ribbon
	Power ON/ Printing Unit Close	Illegal ribbon		○	●	◎	6	2	2	Load Ribbon
	During Printing	mismatching of media size and data		○	●	◎	7	3	3	Change Ribbon & Paper
	During Printing	Paper end	End-hole detection	○	●	○	8	1	1	Load Paper
	During Printing	Ribbon end	Time-out of black mark detection	○	●	○	9	2	2	Load Ribbon
	During Standby	Printing Unit Open		○	◎	●	A	5	5	Close Printing Unit
	During Printing	Printing Unit open during printing		○	◎	●	B	5	7	Reload Paper
	Power ON	Power OFF during printing		—	—	—	C	F	0	Power ON
During Printing	Error relating to Ribbon	MCOP Black mark not detected		○	◎	◎	D	8	7	Reload Paper
		Ribbon skipped 1		○	◎	◎	E	8	7	Reload Paper
		Ribbon skipped 2		○	◎	◎	F	8	7	Reload Paper
		Ribbon stuck to Paper		○	◎	◎	10	8	8	Reload Paper&check Ribbon
During Printing/Feed&Cut etc. During mechanism operation	Paper Jam	Paper Jam 110		○	◎	◎	20	7	7	Reload Paper
		Paper Jam 111		○	◎	◎	21	7	7	Reload Paper
		Paper Jam 115		○	◎	◎	22	7	7	Reload Paper
		Paper Jam 120		○	◎	◎	23	7	7	Reload Paper
		Paper Jam 210		○	◎	◎	25	7	7	Reload Paper
		Paper Jam 310		○	◎	◎	26	7	7	Reload Paper
		Paper Jam 311		○	◎	◎	27	7	7	Reload Paper
		Paper Jam 315		○	◎	◎	28	7	7	Reload Paper
		Paper Jam 320		○	◎	◎	29	7	7	Reload Paper
		During Printing/Feed&Cut etc. During mechanism operation	Mechanical Error	Mechanical Error 200		○	○	●	30	9
Mechanical Error 205				○	○	●	37	9	F	Power OFF-ON
Mechanical Error 210				○	○	●	31	9	7	Reload Paper
Mechanical Error 213				○	○	●	32	9	F	Power OFF-ON
Mechanical Error 400				○	○	●	33	9	F	Power OFF-ON
Mechanical Error 410				○	○	●	34	9	7	Reload Paper
Mechanical Error 425				○	○	●	36	9	F	Power OFF-ON
Power ON	Error relating to Electric circuit	Read error from RFID		○	○	●	3A	A	F	Power OFF-ON
		Read error from FLASH		○	○	●	3B	A	F	Power OFF-ON
		Read error from EEPROM		○	○	●	3C	A	F	Power OFF-ON
		Pre-heating time out		○	○	●	3D	A	F	Power OFF-ON
		MDA unusual state		○	○	●	3E	A	F	Power OFF-ON
		Power fan locked		○	○	●	3F	A	F	Power OFF-ON
		Others		○	○	●	40	E	F	Power OFF-ON
		High								

○:LED ON, ●:LED OFF, ◎:Flash —:depends on previous state

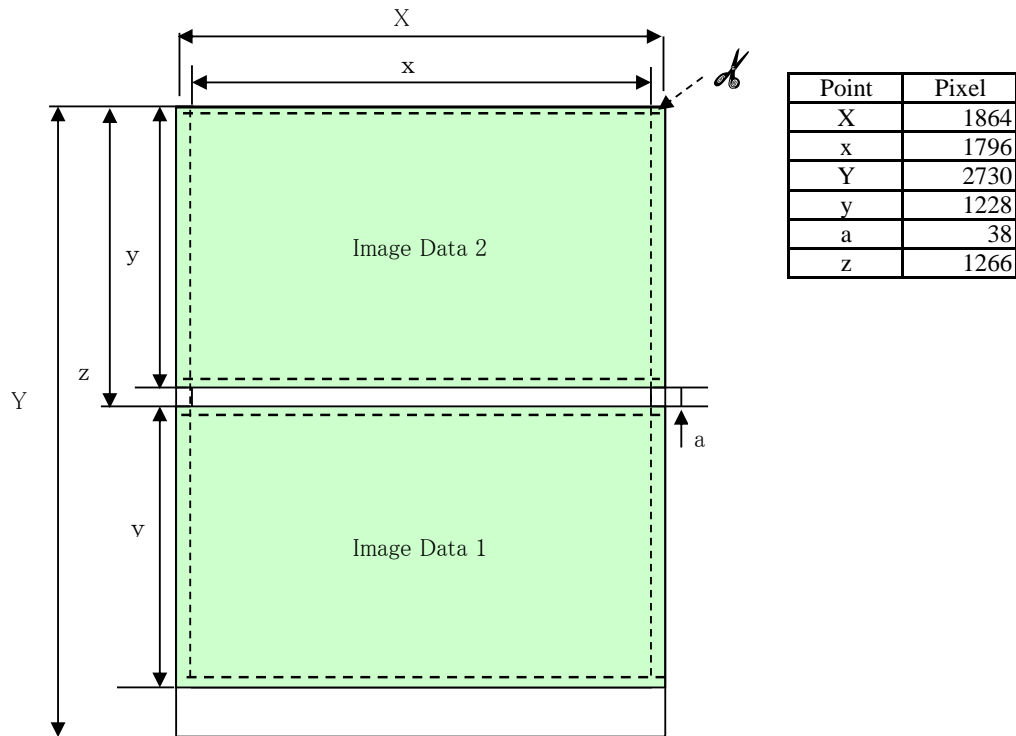
ex. Print Sequence



ex. MultiCut  
<MultiCut Type1>

set YMC size of head : X dot 1864 / Y dot 2730  
set MultiCut : 01h

Image Data layout



<MultiCut Type5>

set YMC size of head : X dot 1864 / Y dot 1228  
set MultiCut : 05h

Image Data layout

