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System Specification for FP6000 Card Reader Control (FP6300 and Code Converter (FP6301)

The following specification has been drawn up by Product Planning in conjunction with Engineering. Revisions have been underlined.

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Specification for FP6000 Card Reader Control

1. The card reader control will be designed to control either of the [illegible] Burroughs card readers B 122 (200 c.p.m.) or B 124 (800 c.p.m.) which have a common interface.

2. The card reader control will be connected as a "slow" character peripheral".

3. Each card reader will have its own control

4. There will be two reading modes:- DECODE and CARD-IMAGE. In the DECODE mode each card column will be translated into a 6 bit character as specified in the appendix. In the CARD-IMAGE mode each column will be read as two 6 bit characters, i.e. top half and bottom half of each column without translation. The bits will be stored with Row 12 at the most significant end and Row 9 at the least significant end.

5. In the DECODE mode the character count in the control word will indicate the number of characters (columns) to be transferred from the card starting at column one, into the store starting at the character address specified in the control word as usual. In the CARD-IMAGE mode the character count in the control word is ignored and all 80 columns (160 characters) are read into store.

6. The code converter for converting Burroughs 6 bit code to FP6000 6 bit code will be designed as a separate optional unit which can be used by more than one control and will contain a plug and socket [illegible] codes for the 18 non-alphanumeric characters to be interchanged.

Continued

7. A special "Accept" interrupt will be generated whenever the START button on the reader is pressed and the reader is not busy.

8. There will be four independent checks on the operation of the card reader.

(i) Feed check. If a card fails to feed correctly the reader will be switched off-line and the Feed check indicator on the reader control panel will be lit.

(ii) Read check. All the lamps, solar cells and read amplifiers will be checked between cards. If an error is detected the reader will be switched off line, the Read Check indicator on the reader control panel will be lit and an ERROR interrupt will be generated.

(iii) Validity check. In DECODE mode there are 63 valid card codes. All other codes translate into octal 74 (\) in the store. If an invalid code is detected while the Validity On switch is on, the reader will be switched off-line, the Validity Check indicator on the reader control console will be lit and an ERROR interrupt will be generated.

(iv) In addition to these checks performed in the reader the control will count (mod 3) the number of column strobe pulses generated by the reader and check the result at end of card. If the result is not correct an ERROR interrupt will be generated.

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9. There will be one control-word and one special-register associated with each control. The special-register bits will be allocated as follows:

BOUT 0	START
BOUT 2	CARD-IMAGE/DECODE
BIN 0	END (See Note 1)
BIN 1	OPERATOR ATTENTION (See Note 2)
BIN 2	ERROR (See paragraph 8)
BIN 3	END OF FILE (See Note 4)
BIN 4	ACCEPT

Note 1 END will be set and an interrupt generated at the end of card.

Note 2 OPERATOR ATTENTION will be set and an interrupt generated if START is sent when the reader is off-line or if the card reader goes off-line while the reader is busy. If the reader is off-line when START is sent, START will be stored in the control and the reader will be busy until the reader is put on-line by the operator.

(i) Feed check (indicated on display panel)

(ii) Stacker full

(iii) Card line mechanism not locked (B124 only)

(iv) Covers not in place

(v) Power off

(vi) STOP button has been pressed

(vii) Validity Check Error

(viii) Read Check Error

Note 3 ERROR will be set if

(i) Read check fails (indicated on display panel)

or (ii) Validity check fails (DECODE mode only; indicated on display panel)

or (iii) Column strobe count check fails

Note 4 END OF FILE will be set and an interrupt generated if START has been sent, the hopper is empty, and the END OF FILE button on the card reader is pressed.

INTERNAL OCTAL	INTERNAL DECIMAL	SYMBOL	SPC	CARD HOLES
00	0	0		0
01	1	1		1
02	2	2		2
03	33	3		3
04	4	4		4
05	5	5		5
06	6	6		6
07	7	7		7
10	8	8		8
11	9	9		9
12	10	:		5 - 8
13	11	;		11-6-8
14	12	<		12-6-8
15	13	=		3 - 8
16	14	>		6 - 8
17	15	?		12 - 0
20	16	SPACE		BLANK
21	17	!	÷	11 - 0
22	18	"	\	0-7-8
23	19	#	≠	0-2-8
24	20	$		11-3-8
25	21	%	≤	11-7-8
26	22	&		12-7-8
27	23	'	,	4 - 8
30	24	(		0-4-8
31	25	)		12-4-8
32	26	*		11-4-8
33	27	+		12
34	28	,		0-3-8
35	29	-		11
36	30	.		12-3-8
37	31	/		0 - 1

INTERNAL OCTAL	INTERNAL DECIMAL	SYMBOL	SPC	CARD HOLES
40	32	@		7 - 8
41	33	A		12 - 1
42	34	B		12 - 2
43	35	C		12 - 3
44	36	D		12 - 4
45	37	E		12 - 5
46	38	F		12 - 6
47	39	G		12 - 7
50	40	H		12 - 8
51	41	I		12 - 9
52	42	J		11 - 1
53	43	K		11 - 2
54	44	L		11 - 3
55	45	M		11 - 4
56	46	N		11 - 5
57	47	O		11 - 6
60	48	P		11 - 7
61	49	Q		11 - 8
62	50	R		11 - 9
63	51	S		0 - 2
64	52	T		0 - 3
65	53	U		0 - 4
66	54	V		0 - 5
67	55	W		0 - 6
70	56	X		0 - 7
71	57	Y		0 - 8
72	58	Z		0 - 9
73	59	[		12-5-8
74	60	\	≥	2 - 8
75	61	]		11-5-8
76	62	↑		0-5-8
77	63	←		0-6-8

TABLE 3

PUNCHED CARD CODE

CARD HOLES	SYMBOL	INTERNAL (Octal)	CARD HOLES	SYMBOL	INTERNAL (Octal)
0	0	00	11 - 0	!	21
1	1	01	11 - 1	J	52
2	2	02	11 - 2	K	53
3	3	03	11 - 3	L	54
4	4	04	11 - 4	M	55
5	5	05	11 - 5	N	56
6	6	06	11 - 6	O	57
7	7	07	11 - 7	P	60
8	8	10	11 - 8	Q	61
9	9	11	11 - 9	R	62
11	-	35			
12	+	33	BLANK	SPACE	20
0 - 1	/	31	12 - 0	?	17
0 - 2	S	63	12 - 1	A	41
0 - 3	T	64	12 - 2	B	42
0 - 4	U	65	12 - 3	C	43
0 - 5	V	66	12 - 4	D	44
0 - 6	W	67	12 - 5	E	45
0 - 7	X	70	12 - 6	F	46
0 - 8	Y	71	12 - 7	G	47
0 - 9	Z	72	12 - 8	H	50
			12 - 9	I	51
2 - 8	\	74			
3 - 8	=	15	0 - 2 - 8	#	23
4 - 8	'	27	0 - 3 - 8	,	34
5 - 8	:	12	0 - 4 - 8	(	30
6 - 8	>	16	0 - 5 - 8	↑	76
7 - 8	@	40	0 - 6 - 8	←	77
			0 - 7 - 8	"	22
11 - 3 - 8	$	24			
11 - 4 - 8	*	32	12 - 3 - 8	.	36
11 - 5 - 8	]	75	12 - 4 - 8	)	31
11 - 6 - 8	;	13	12 - 5 - 8	[	73
11 - 7 - 8	%	25	12 - 6 - 8	<	14
			12 - 7 - 8	&	26

TABLE 3A PUNCHED CARD CODE