

To: MSPM distribution

From: D.E. Joel

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The revised version of B.E. 6.00 contains an extended facility for the use of keypunched BCD cards in the 64.5 System.

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Identification

Overview of the 64.5 System

D. E. Joel

Purpose

The 64.5 system is designed to provide a user with the ability to assemble and simulate GE645 programs on the GE635. The system is card driven, and output comes from the online printer and punch.

Introduction

The assembly and simulation processes are performed by the set of programs described in section BE.7.

The input run (6.45 Driver) is used to create a tape suitable for input to GECOS, in similar fashion to the merge-editor (BE.5.02).

The output run (6.45 Dumper) provides for printing the simulated GE645 memory dump, edited for easy interpretation, and punching requested text and linkage files resulting from assemblies.

Character Set

The character set available is the 64 character set as per GE635 GECOS standard, with four characters changed:

<u>GE</u> character	represents	<u>ASCII</u>	
\		^	
↑			(Vertical line)
'	(apostrophe)	/	(Accent acute)
←		-	(Underline)

An alternative punch code set has been provided (designated IBMF) in the 64.5 system. The objective is to provide, optionally, a more suitable code set for users who have IBM026's available with the Fortran code set.

A 64.5 control card of the format:

Columns	1 - 4	\$645
"	8 - 13	INCODE
"	16 - 19	IBMF
	Other columns blank	

.causes all BCD cards following itself and preceding the next control card

(i.e., a card with \$645 in Col. 1-4) to undergo transliteration.

Example:

If the ASCII character required is  $\text{ ] }$ , then punch:

- (a) GECOS Standard - 12 - 4 - 8
- (b) IBMF - 11 - 5 - 8

For a complete listing of the character set see table on BE.6.00 Page 4.

### ESCAPE CONVENTIONS

Since the 645 simulation system uses, as its standard, the full 128 character ASCII set, the following escape conventions are provided to enable the 64.5 user to use the entire set. Section BC.2.01 contains a description of the complete ASCII character set.

- $\wedge$ d1d2d3 - designates the octal code d1 d2 d3 (Modulo 128). This permits full flexibility.
- $\wedge$ - - designates backspace (ASCII octal 010)
- $\wedge$ U - designates that all subsequent alphabetics are to be considered upper case until a  $\wedge$ L sequence is encountered.
- $\wedge$ L - designates that all subsequent alphabetics are to be considered lower case until a  $\wedge$ U sequence is encountered. This is assumed as the initial mode for alphabetics.
- $\wedge$ N - designates  $\overline{\quad}$  (overbar)
- $\wedge$ T - designates  $\sim$  (tilde)
- $\wedge$ ' - designates  $\backslash$  (accent grave)
- $\wedge$ ( - designates { (left brace)
- $\wedge$ ) - designates } (right brace)
- $\wedge$ H - designates Horizontal tab character

An end of card automatically generates a new line character unless it is specifically overridden. The following escapes permit flexible use of the new line characters:

- $\wedge$ \* commands "skip reading the remainder of this card and do not generate a new line character".
- $\wedge$ / commands "skip reading the remainder of this card and do generate a new line character".

$\wedge$  + commands "generate a new line character and continue reading this card".

Any misuse of the escape facility will result in the characters being deleted from the line.

Example:

Card Input:

```
 $\wedge$ UM $\wedge$ LR.  $\wedge$ UJ $\wedge$ LOHN  $\wedge$ UD $\wedge$ LOE $\wedge$ +123  $\wedge$ UE $\wedge$ LLM  $\wedge$ US $\wedge$ LT. $\wedge$ +  $\wedge$ UB $\wedge$ LOSTON,  
 $\wedge$ UM $\wedge$ LASS.  $\wedge$ /CARD 1.
```

ASCII Output:

```
Mr. John Doe  
123 Elm St.  
Boston, Mass.
```

ASCII		Standard Format				IBMF Format			
Character	Octal	Punch	Multi Punch	Internal 635		Punch	Multi Punch	Internal 635	
				Character	Octal			Character	Octal
Space	40	—		Space	20	—		Space	20
!	41	0-7-8	✓	!	77	0-7-8	✓	!	77
"	42	0-6-8	✓	"	76	0-6-8	✓	"	76
#	43	3-8		#	13	5-8	✓	:	15
\$	44	11-3-8		\$	53	11-3-8		\$	53
%	45	0-4-8		%	74	12-5-8	✓	(	35
&	46	12		&	32	0-5-8	✓	=	75
' (acute)	47	11-7-8	✓	'	57	4-8		@	14
(	50	12-5-8	✓	(	35	0-4-8		%	74
)	51	11-5-8	✓	)	55	12-4-8		] ]	34
*	52	11-4-8		*	54	11-4-8		*	54
+	53	12-0	✓	+	60	12		&	32
,	54	0-3-8		,	73	0-3-8		,	73
—	55	11		—	52	11		—	52
.	56	12-3-8		.	33	12-3-8		,	33
/	57	0-1		/	61	0-1		/	61
0 (Zero)	60	0		0	00	0		0	00
1	61	1		1	01	1		1	01
2	62	2		2	02	2		2	02
3	63	3		3	03	3		3	03
4	64	4		4	04	4		4	04
5	65	5		5	05	5		5	05
6	66	6		6	06	6		6	06
7	67	7		7	07	7		7	07
8	70	8		8	10	8		8	10
9	71	9		9	11	9		9	11
:	72	5-8	✓	:	15	12-0	✓	+	60
;	73	11-6-8	✓	;	56	11-6-8	✓	;	56
<	74	12-6-8	✓	<	36	12-6-8	✓	<	36
=	75	0-5-8	✓	=	75	3-8		#	13
>	76	6-8	✓	>	16	6-8	✓	>	16
?	77	7-8	✓	?	17	7-8	✓	?	17
A (a)	101 (141)	12-1		A	21	12-1		A	21
B (b)	102 (142)	12-2		B	22	12-2		B	22
C (c)	103 (143)	12-3		C	23	12-3		C	23
D (d)	104 (144)	12-4		D	24	12-4		D	24
E (e)	105 (145)	12-5		E	25	12-5		E	25
F (f)	106 (146)	12-6		F	26	12-6		F	26
G (g)	107 (147)	12-7		G	27	12-7		G	27
H (h)	110 (150)	12-8		H	30	12-8		H	30
I (i)	111 (151)	12-9		I	31	12-9		I	31
J (j)	112 (152)	11-1		J	41	11-1		J	41
K (k)	113 (153)	11-2		K	42	11-2		K	42
L (l)	114 (154)	11-3		L	43	11-3		L	43
M (m)	115 (155)	11-4		M	44	11-4		M	44
N (n)	116 (156)	11-5		N	45	11-5		N	45

