bcc	title	prefix/class-number.revision
	SYSDDT COMMANDS	SDDTCOM/W-46

checked	authors	approval date / revision date	pages
checked	Peter Deutsch	classification: Working Document	
approved		distribution: Company Private	7

ABSTRACT and CONTENTS

This is a very, very concise list of commands which are in SYSDDT but not TPDDT. It includes lists of predefined symbols and of error messages.

s = symbol

e = expression

f = tape file name

Registers (like ;A):	%L	L reg.
	%G	G reg.
	%S	status reg.
	%C	C reg.
	%D	D reg.
	%@	context block address - read only
	%Q	instruction counter
	%>	max. monitor stack pointer
	.%X	-1=sim only, 0=compare, 1=run only
	%F	break flags
	%A	ATTN flags (1= do strobe, 0=sim)
	%*	schedule mode
	%U	selected μproc (1=AMC, 2=UTP, 3=CHIO)
	%I	μ breakpoint
	;F	end of symbols - read only
Printout:	$	open as IAW
	#	retype as IAW
	;$	set mode to IAW
	@	open formatted

	>	retype formatted
	;@	set mode to formatted
	%M	format mask reg.
	%N	format control reg.
	e,e%M	set mask & control
	l;[	(etc.) set mode for reg. print at break
	l<e,e/	(etc.) list on line printer, 4 per line
	e,e%[	list in octal on line printer, 8 per line
	%/	open ITP cell
Addressing:	s:	instr addr tag
	s&	IAW addr tag
	s*	instr addr & subtract G
	:	compute eff addr of instr
	&	compute eff addr of IAW
	*	subtract G
Tags:	D,I,X,P,IP,B,BD,L,IL,R,IR,Q,QX	
	can use nG and nL in short addresses	
M30 commands:	;Tf.	load symbols
	;Wf.	write symbols

Breakpoints:	!	clear special
	{e,}e!	set special
	;!	list
	{e,}e;!	set
	%!	clear all
	{e,}e%!	clear
	{e,}e;.	set special & ;P
	%P	restart μproc %U after break
	{e}%.	set %I & do %P
Miscellaneous:	%Z	unmapped addressing
	%R	mapped addressing
	;O	retype octal
	;D	retype decimal
	{e}%↑	print stack
	%←	print map
	e%$	1=set CPU STEP, 0=set PROCEED
	%J	print branch buffer
	%B	print BLL/funny branch buffer
	;R	retype symbolic
	;V	retype absolute
	e%R	select process with PRT entry at e
	e,e;↑	POT e2 to device e1
	e%Z	zap processor e
	e<e,e;<	move main memory e2-e3 to ITP at e1

```
                    e<e,e;>   move ITP e1 et seq. to main
                              e2-e3
                        e;<   move state for μproc e from main
                              to ITP
                        e;>   move state for μproc e from ITP
                              to main

Selective simulation:e%-      simulate e (opcode or MCALL, UCALL,
                              POP) even with %X#-1
                      e%+     undoes %-
                       %#     makes everything %-
                       %:     lists things which are %-

%F:     bit   0 break on any ring change
              1 break on ring-dep. trap
              2 break on fixed trap
              3 break on UCALL/MCALL
              4 break on privileged OPR

%A:     bit   23   (1)   AMC
              22   (2)   UTP
              21   (4)   CHIO
              20  (10B)  CPU

Descriptor output:
              array [size:itemsize]  1  T
                                     LB  ATRAP
```

string <word:cpos/csize>

field (word:firstbit,lastbit) S
signed↑

Predefined symbols

Name	Value	Meaning
IPL	100310B	IPL;U gets you back to IPL
Z	6B7	Z n[, etc. gets absolute (unmapped) cell n
X	4B6	X-relative flag in IAW
POP	4B4	POP bit in instr
AMC	1	μproc number for AMC
UTP	2	same for UTP
CHIO	3	same for CHIO
CPU	4	same for CPU (%Z only)
O.	--	saved O-reg. (BRKADR) for μproc %U - value changes when %U is changed
OS.	--	saved OS-reg.
M.	--	saved M-reg.
Q.	--	saved Q-reg.
Z.	--	saved Z-reg.
SK.	--	SK.+1 through SK.+77B are saved scratchpad
R.	--	R. through R.+6 are saved holding regs.

Error messages

At any time:

STKOV	Internal stack overflowed. Command aborted
?>>m n	ITP trap. Disaster unless executing as a result of ;U.
(U)	Undefined symbol typed in

When defining a symbol:

FULL	Symbol table is full. Definition not recorded

When simulating or executing:

RING CROSSING AT n RING-DEP. TRAP AT n FIXED TRAP AT n SYSTEM CALL AT n PRIV. OPR AT n	things selected by %F
EXU CHAIN TOO LONG AT n	
NOT IMPLEMENTED AT n	
TOO MANY STORES AT n	>20 stores by 1 instr in compare mode
TABLES SNARLED AT n	Couldn't find something vital in CHT
USCL, SCHED. MODE OFF AT n	

CPU HUNG UP AT n	CPU did not come back in about 30 ms
CPU IDLE AT n	USCL left CPU idle
SIM#CPU AT n	preceded by a list of disagreements

All of the above have n as the address of the next instruction to be executed.