

Prom Name	Rev	Part No.	Location	Page	Comments	
SwitchProm	R	F93427	i14	14	New Rev for 16K Control Store CP	256 x 4
KernPC16Prom	B	F93427	h14	15	Standard	256 x 4
CSIntProm	D	F93453	e20	22	Standard	1K x 4
StackVirtProm	I	F93427	h24	15	Standard	256 x 4
ScheduleProm	D	F93453	h18	14	Standard	1K x 4
ErrorProm	E	F93453	g14	15	Standard	1K x 4
IBProm-PC.0	G	F93453	i17	05	Standard	1K x 4
IBProm-PC.4	G	F93453	h17	05	Standard	1K x 4
DesMpProm.0	B	F93427	a16	33	Added to control DES logic	256 x 4
DesMpProm.4	B	F93427	b16	33	Added to control DES logic	256 x 4
DesSpProm	A	F93427	b15	33	Added to control DES logic	256 x 4

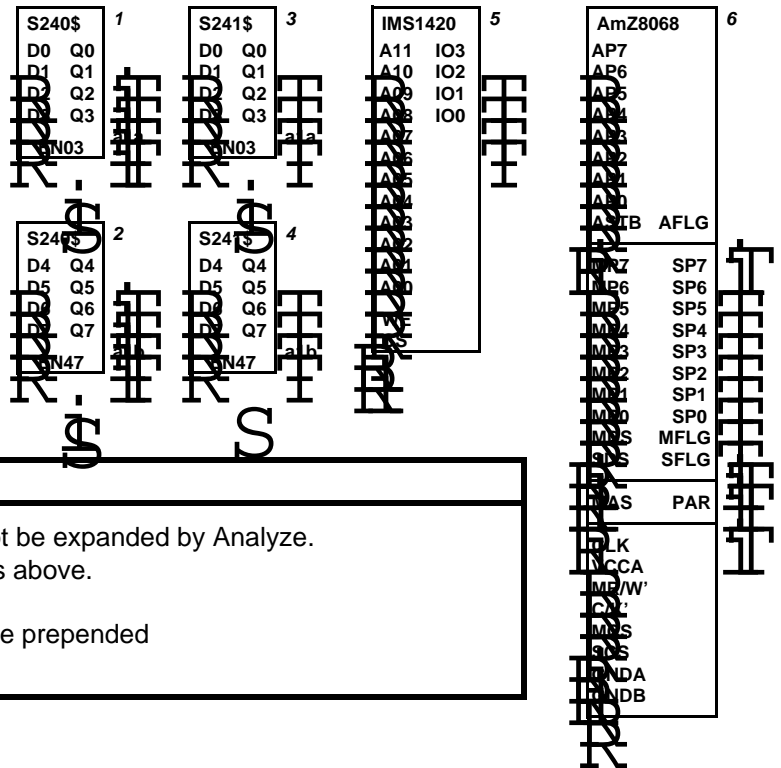
Prom files are stored on [Indigo]<Dandelion>CPE>Proms>*

Bringover /a [Indigo]<Dandelion>CPE>DfFiles>Proms.df to fetch all files, sources, tools, etc.

Labels:

Switch i14 Rev-R	KernPC16 h14 Rev-B	CSInt e20 Rev-D	StackVirt h24 Rev-I	Schedule h18 Rev-D	Error g14 Rev-E	IB-PC.0 i17 Rev-G	IB-PC.4 h17 Rev-G	DesMp.0 a16 Rev-B	DesMp.4 b16 Rev-B	DesSp b15 Rev-A
Switch i14 Rev-R	KernPC16 h14 Rev-B	CSInt e20 Rev-D	StackVirt h24 Rev-I	Schedule h18 Rev-D	Error g14 Rev-E	IB-PC.0 i17 Rev-G	IB-PC.4 h17 Rev-G	DesMp.0 a16 Rev-B	DesMp.4 b16 Rev-B	DesSp b15 Rev-A
Switch i14 Rev-R	KernPC16 h14 Rev-B	CSInt e20 Rev-D	StackVirt h24 Rev-I	Schedule h18 Rev-D	Error g14 Rev-E	IB-PC.0 i17 Rev-G	IB-PC.4 h17 Rev-G	DesMp.0 a16 Rev-B	DesMp.4 b16 Rev-B	DesSp b15 Rev-A
Switch i14 Rev-R	KernPC16 h14 Rev-B	CSInt e20 Rev-D	StackVirt h24 Rev-I	Schedule h18 Rev-D	Error g14 Rev-E	IB-PC.0 i17 Rev-G	IB-PC.4 h17 Rev-G	DesMp.0 a16 Rev-B	DesMp.4 b16 Rev-B	DesSp b15 Rev-A

Font 4 Macros



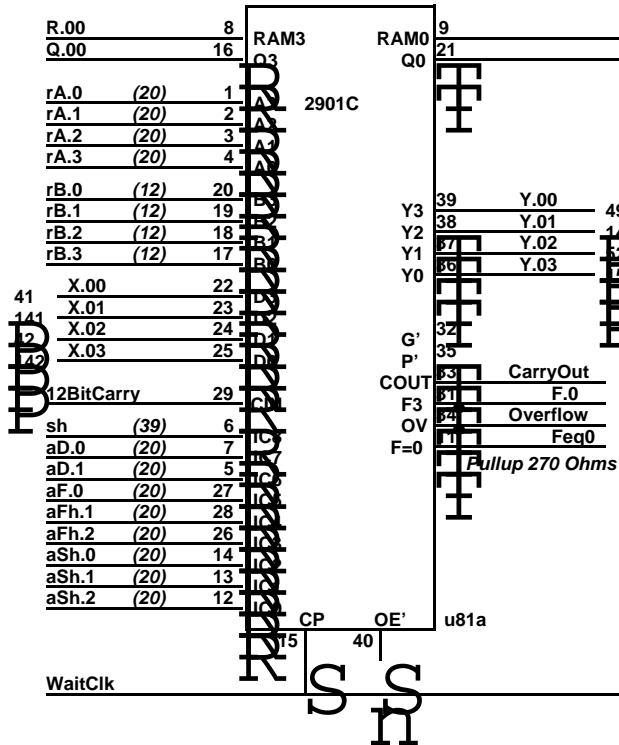
Important Notes:

Only macros 0-9 are valid component names and will not be expanded by Analyze. Some of these drawings contain instances of the macros above. Those that do have a warning on them, see below left. There is a corresponding CPEDict.analyze that should be prepended to the dictionary chain.

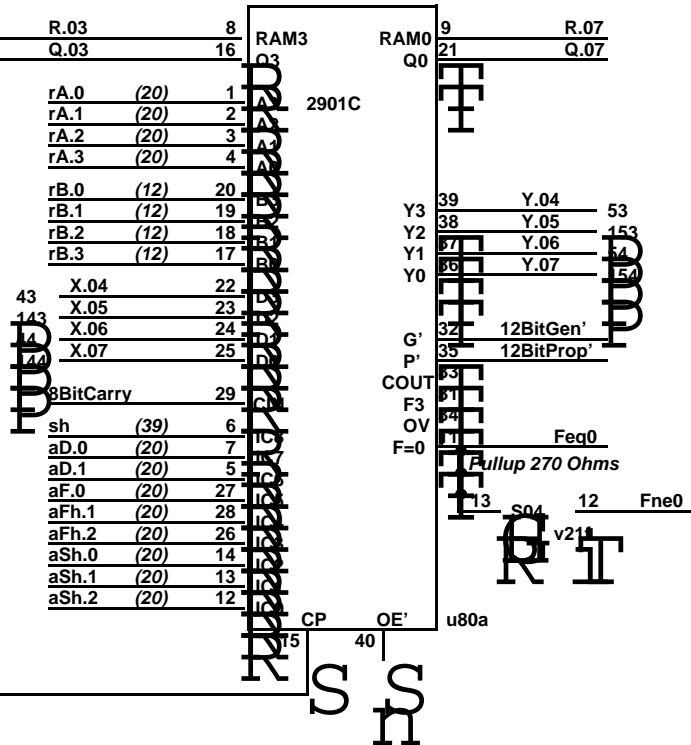
Warning: This drawing contains font 4 macros!

XEROX	PROPRIETARY NOTE ON COVER SHEET APPLIES TO ALL SHEETS	DWG SIZE	DWG NO. 156P12560	SHEET REV.
	TITLE SCHEMATIC, CPE-FP	A4	SHEET 02 OF	A

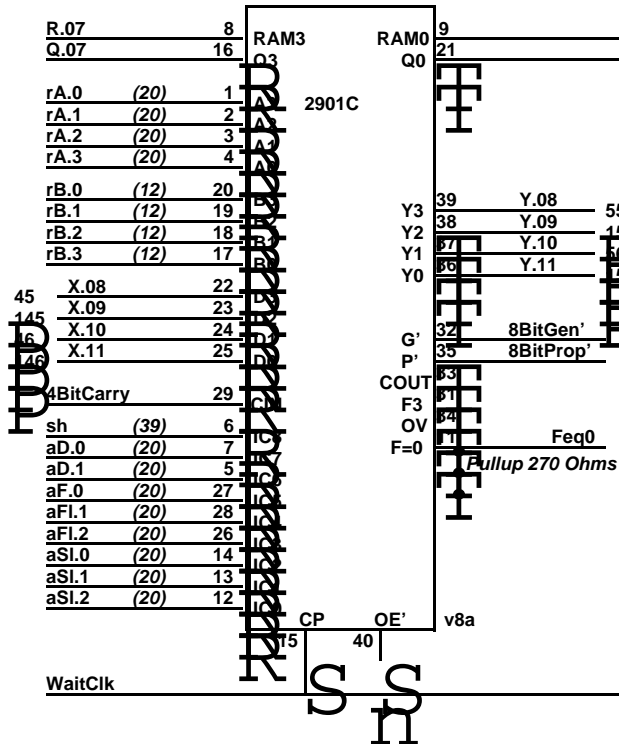
[00-03]



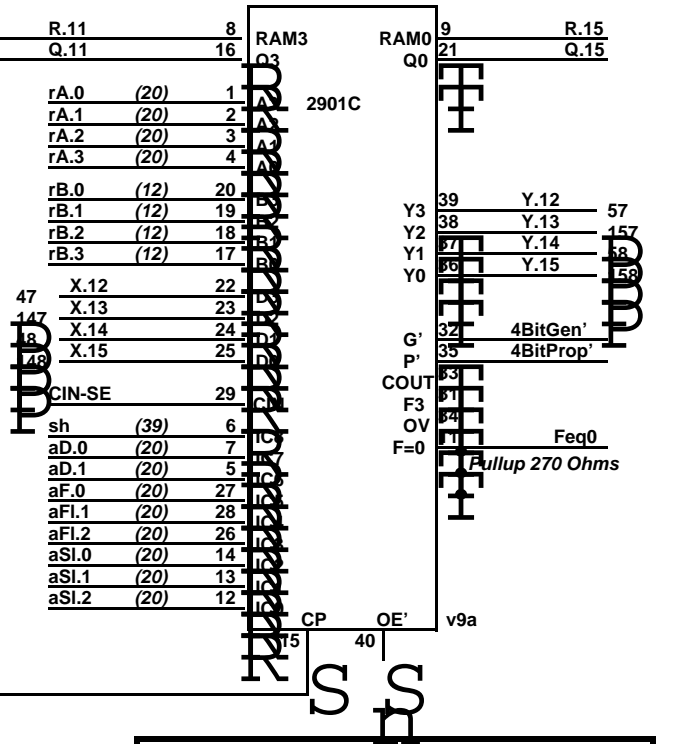
[04-07]



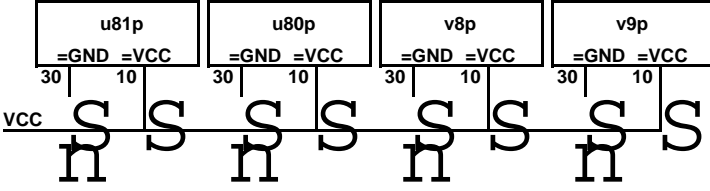
[08-11]



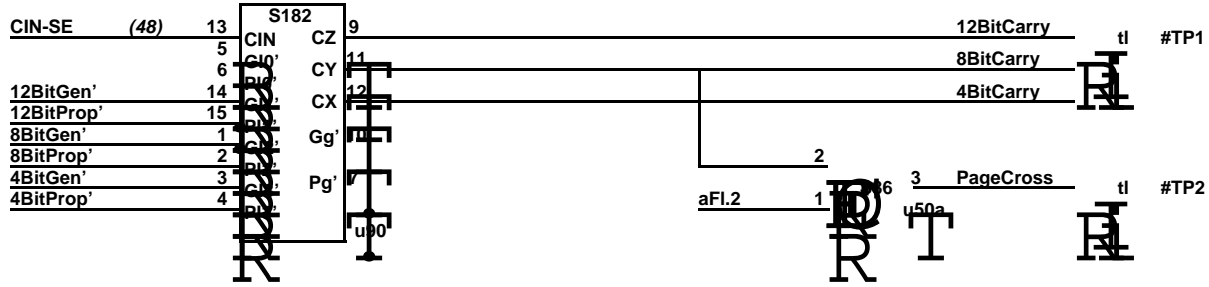
[12-15]



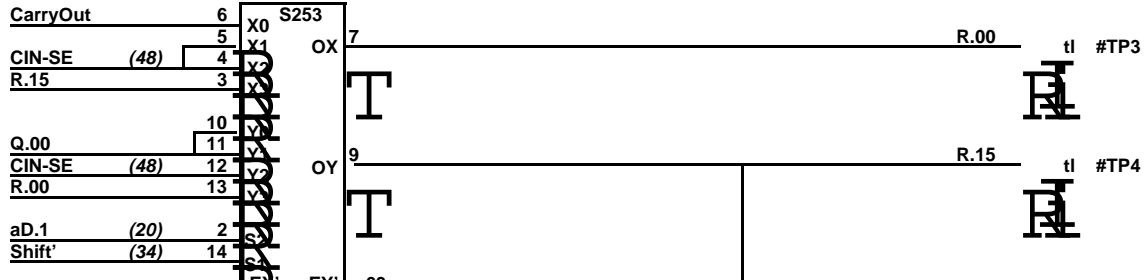
2901C Timing		As of 10/05/82	
Setup	sh,,aD	10	
Setup	aF	30	
Setup	aS	30	
rA	to G,P	37	rA to Y 40
D	to G,P	30	D to Y 30
Cn	to Y	22	Cn to Y 22
rA	to Cout	40	aS to Y 35
D	to Cout	30	aF to Y 35
Cin	to Cout	20	aD to Y 25



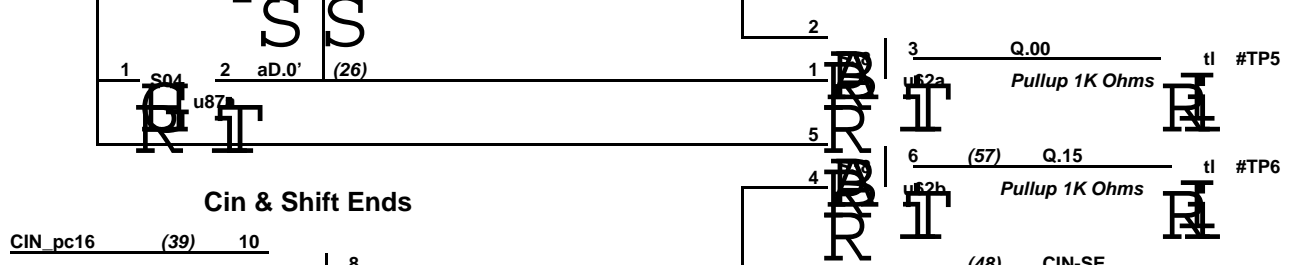
2901 Carry Lookahead



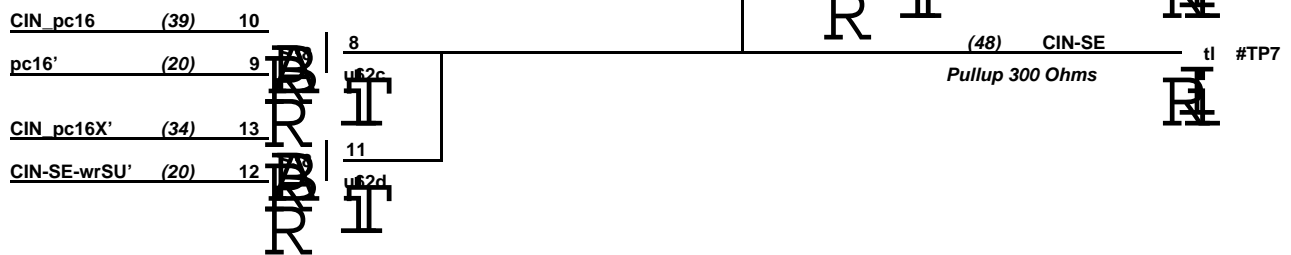
R Shift Ends



Q Shift Ends

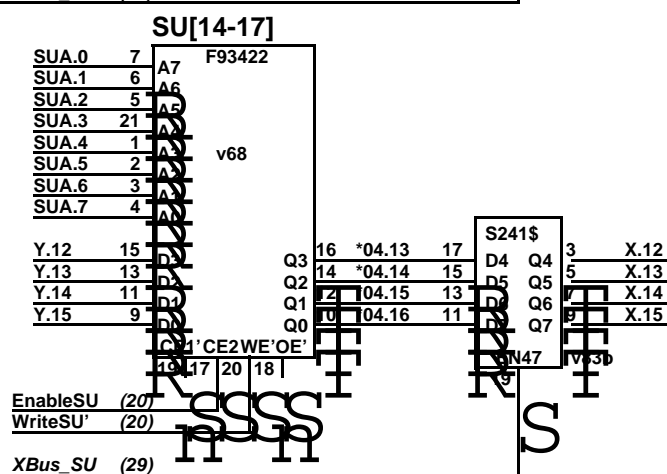
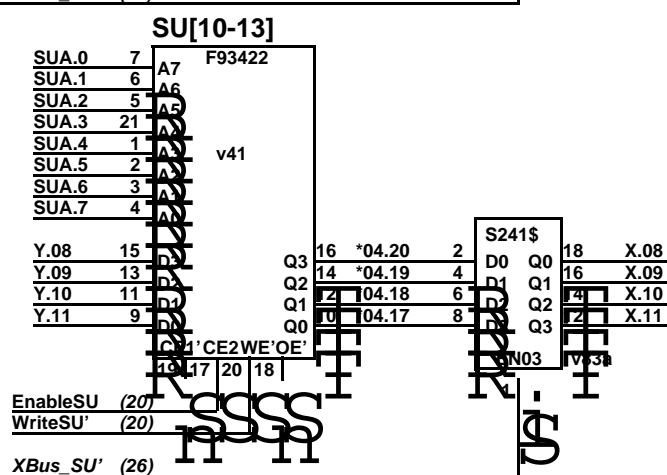
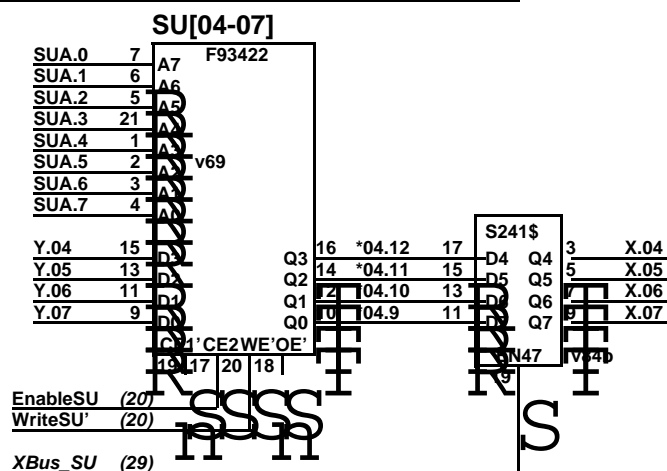
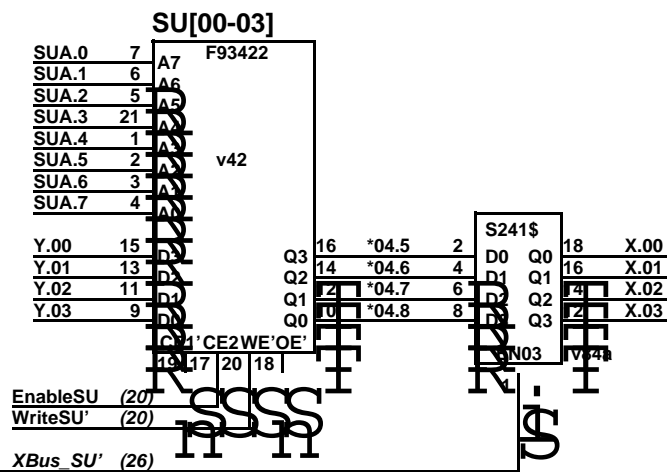
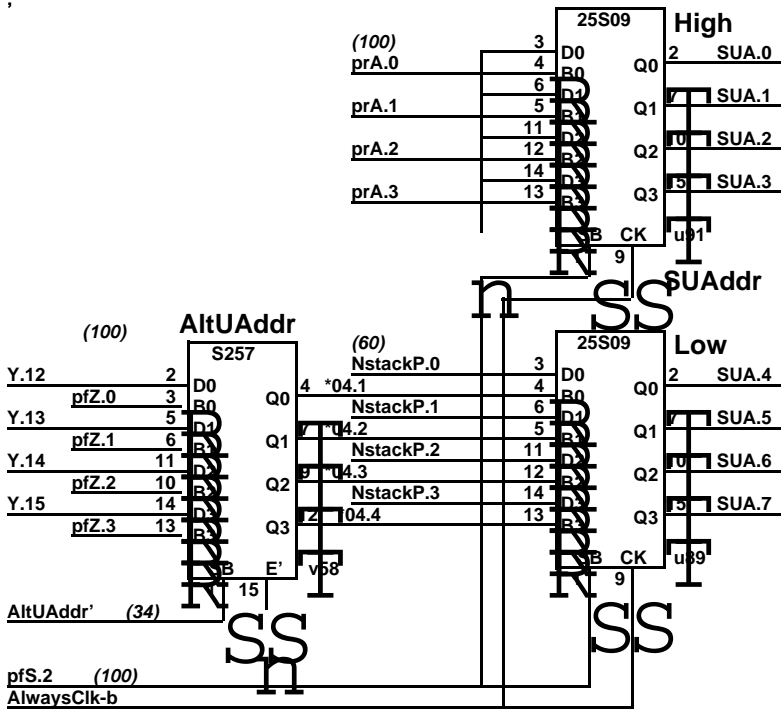


Cin & Shift Ends



aD.1	Shift'	Shift configuration
0	0	
0	1	
1	0	
1	1	

aD.0 = 0 implies right shift



SU X-bus disable

15[3] ^ to CIN-SE-wrSU (tPLH)
 30 Output Disable
 10 X-bus
 55[3] = 58 nS

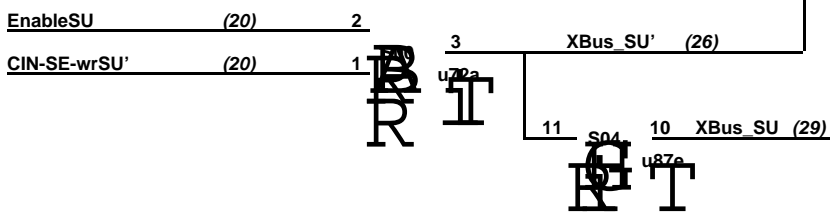
XBus _ SU = max(75,60) nS

17[3] ^ to SUAddr 17[3] ^ to CIN-SE-wrSU/EnableSU
 45 tAA 30 F93422 OE/CE2 to X-bus
 10 X-bus 10 X-bus
 72[3] = 75 nS 57[3] = 60 nS

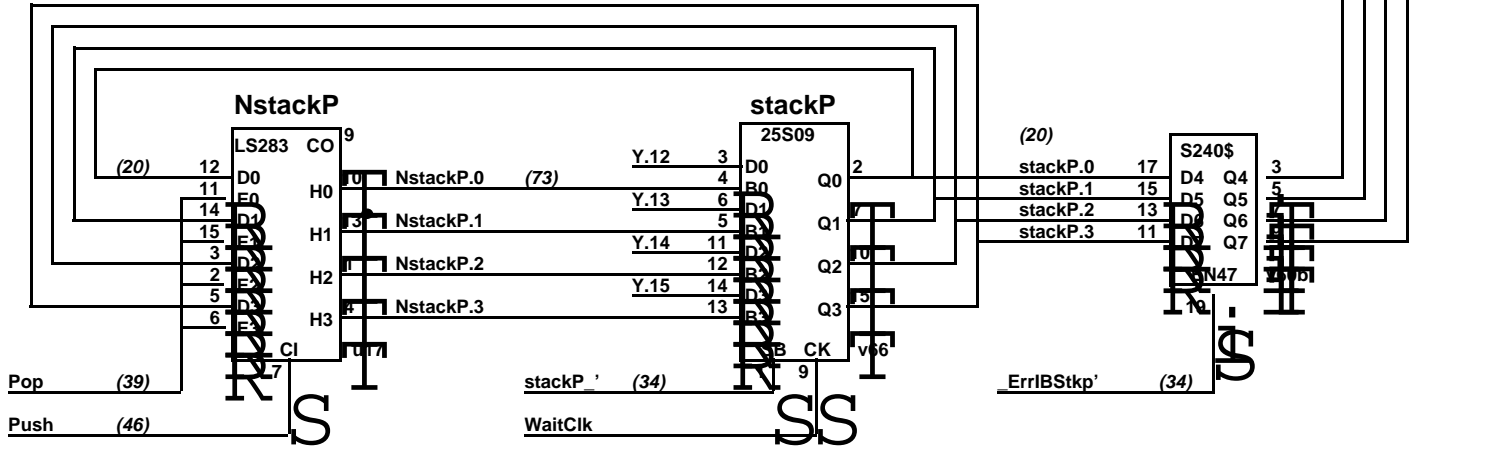
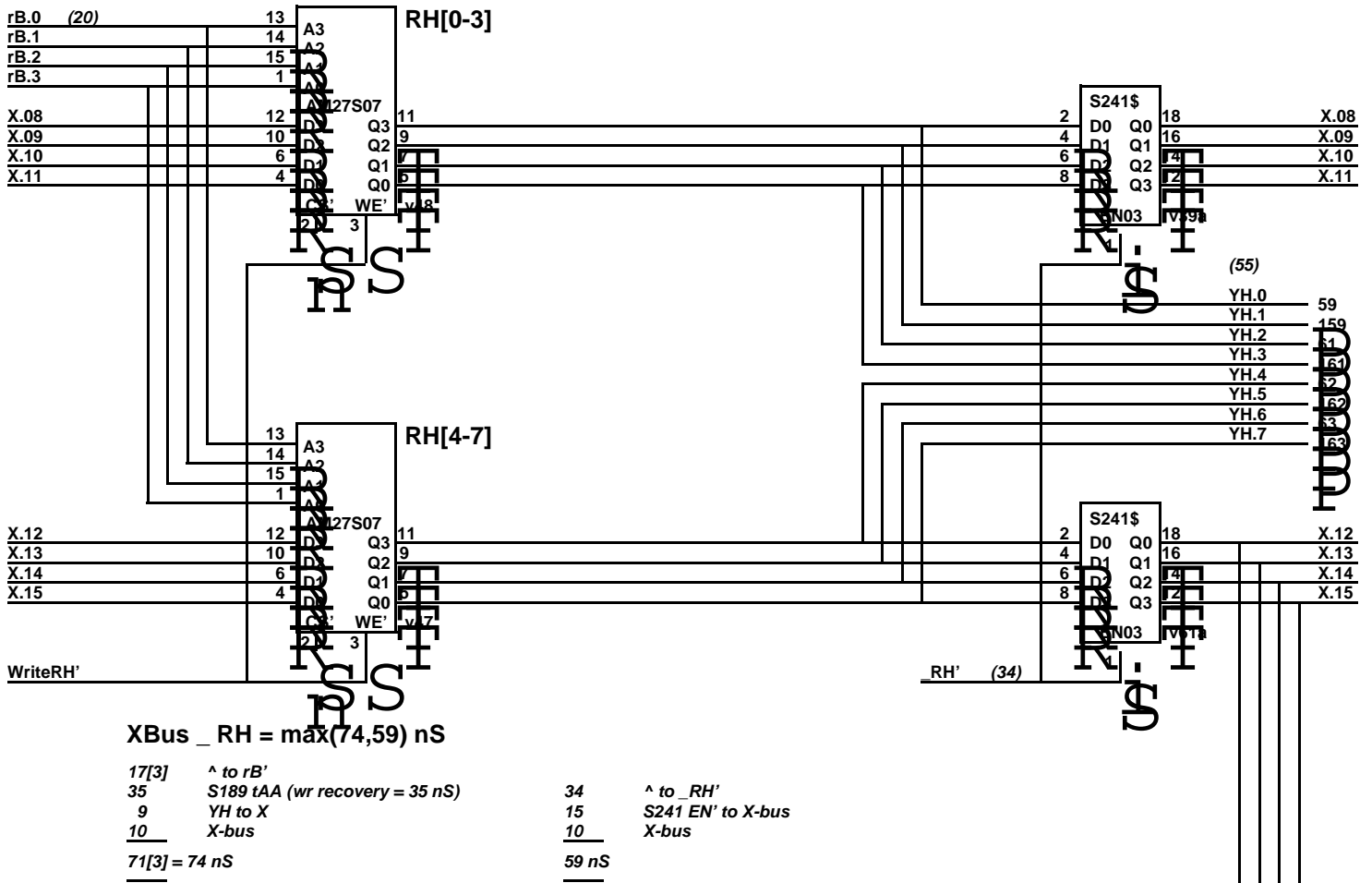
SU write setup **AltUAddr setup**

5[1] Data setup 5[1] 25S09 setup
 39 WE 8[1] Y -> pU
 44[1] = 45 nS 13[2] = 15 nS (26 if LS257)

F93422 data t-hold = 5 nS



Warning: This drawing contains font 4 macros!



Push Timing

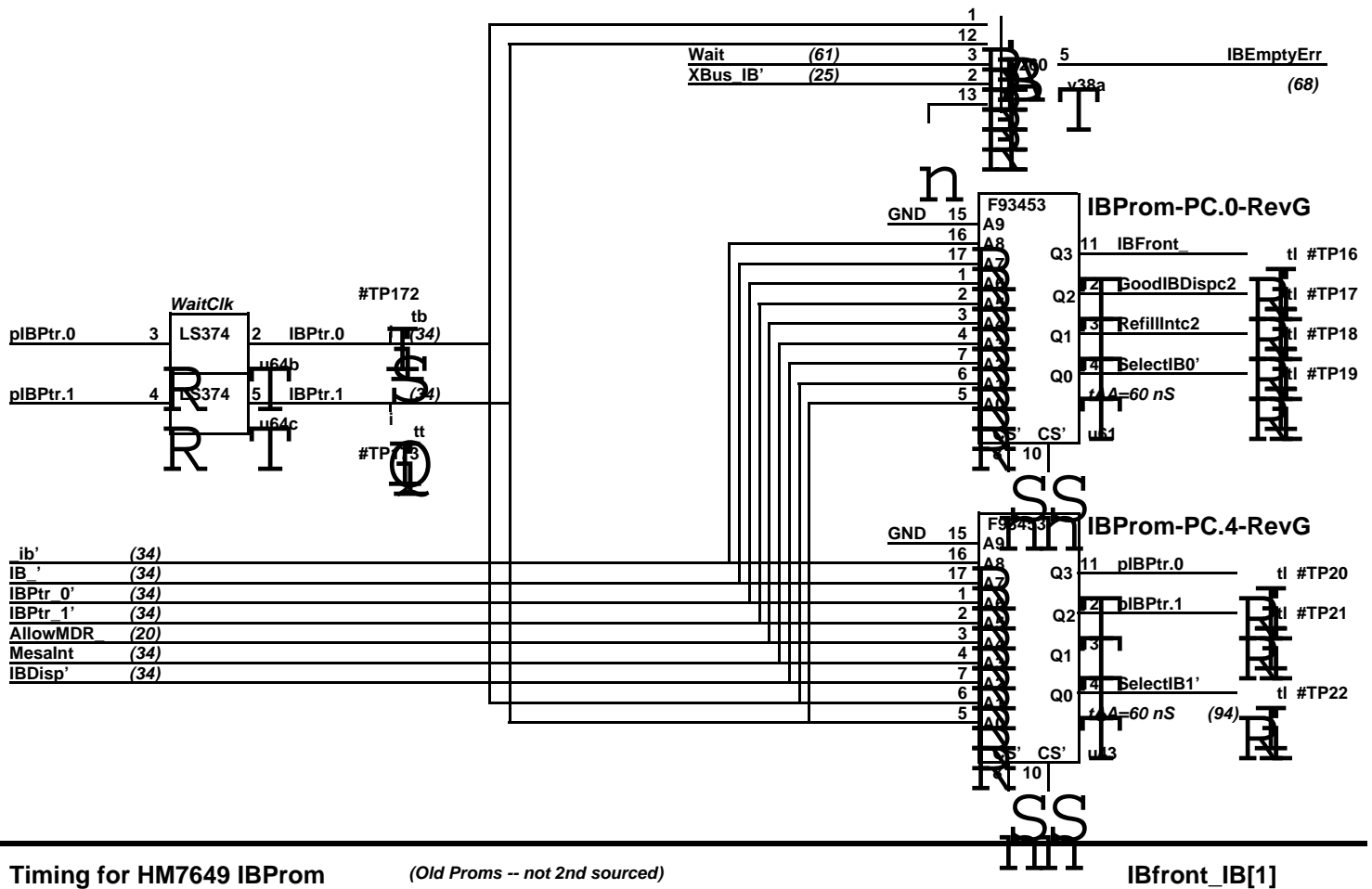
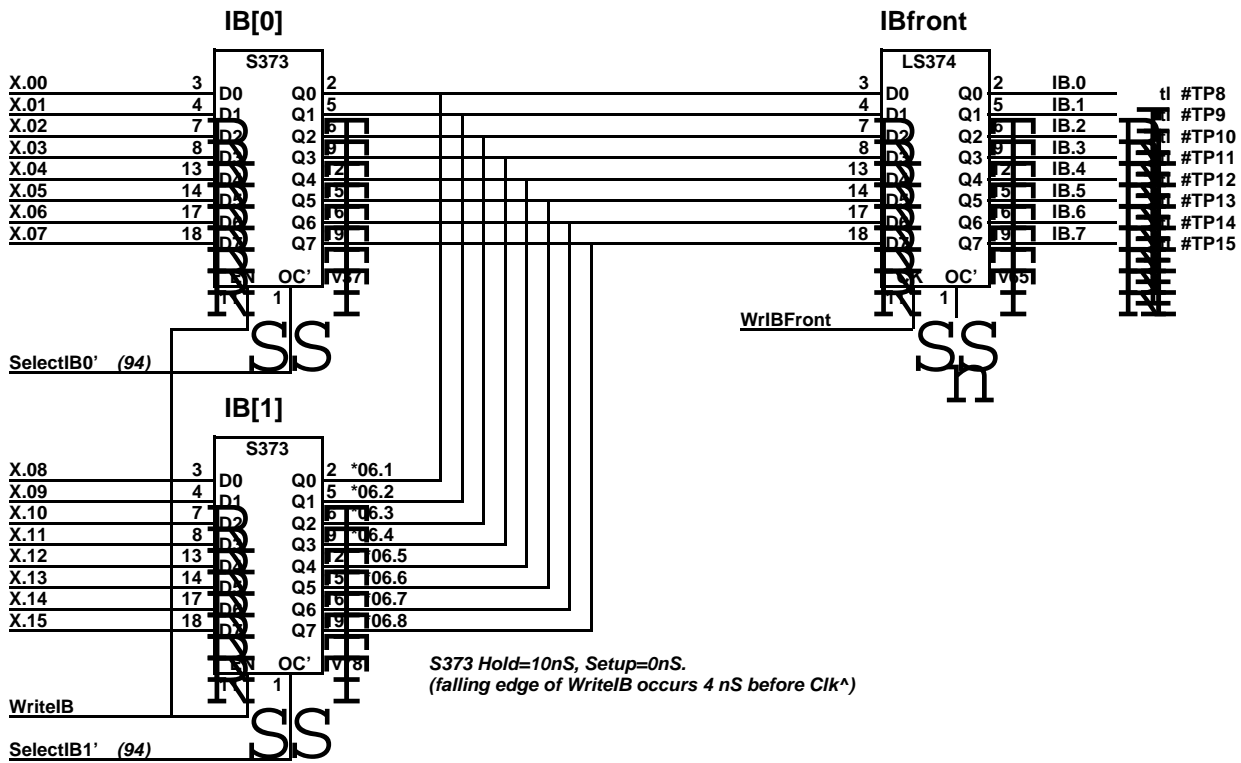
46 ^ to Push
 24[3] Push to NstackP
 5[1] 25S09 setup
75[4] = 79 nS

XBus _ stackP = max(59, 38) nS

17[3] ^ to stackP
 7 S240 data to X-bus
 10 X-bus
34[3] = 38 nS

34 ^ to _ErrIBStkp'
 15 S240 EN' to X-bus
 10 X-bus
59 nS

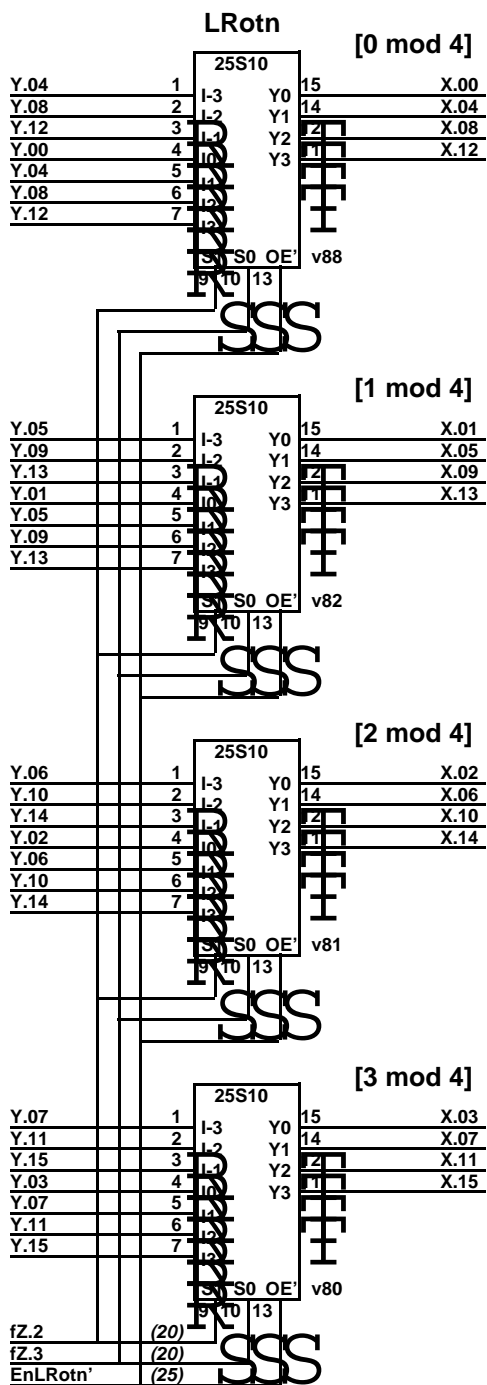
Warning: This drawing contains font 4 macros!



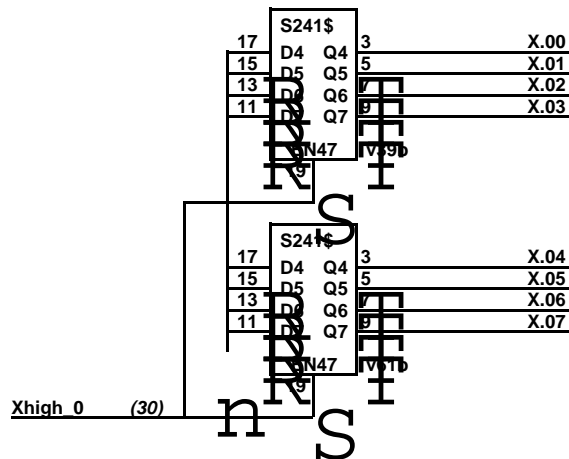
Timing for HM7649 IBProm (Old Proms -- not 2nd sourced)

IBFront _ Xbus = (x+37, x+36) nS

x	Xbus to IB	x	Xbus to IB	94	WriteIB rises	34	^ to IBPtr_1'
43	WriteIB rises 43 nS before end of cycle	13[1]	S373 Data to NB	18[2]	S373 EN to NB	60	tAA
-6	Difference between S373 "EN to Q" and "Data to Q" =	20[2]	LS374 setup	20[2]	LS374 setup	18[2]	SelectIB1' to NB
x+37 nS	18[2] - 13[1] = 6 nS. Data can arrive 6 nS after WriteIB goes high.	x+36 nS		132[4]=136 nS		20[2]	LS374 setup
						132[4]=136 nS	



fZ.2	fZ.3	Rotate
0	0	Left 0
0	1	Left 12
1	0	Left 8
1	1	Left 4



Zero disable X-bus

30	^ to Xhigh_0
15	S241 EN to X-bus
10	X-bus
55 nS	

Xbus[0-7] _ 0

30	^ to Xhigh_0
15	S241 OE
10	X-bus
55 nS	

Xbus _ Y LRotn = max(y+22, 56, 50) nS

y	^ to Y bus
12	25S10 data in to out
10	X-bus
y + 22 nS	

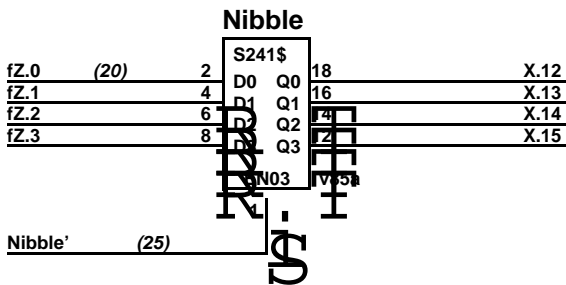
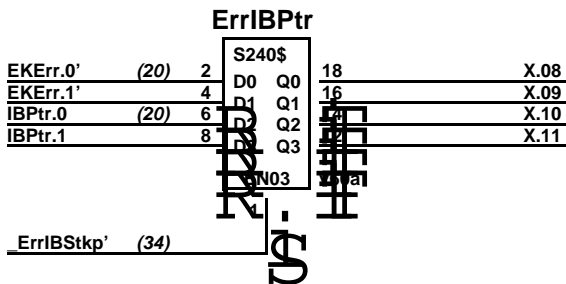
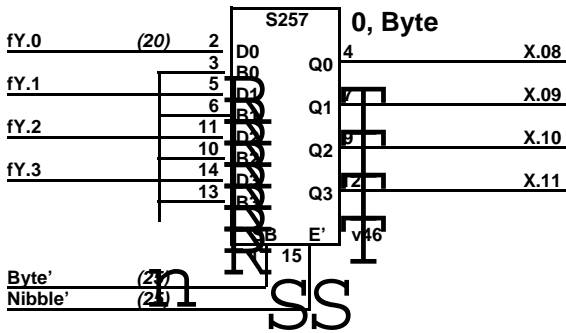
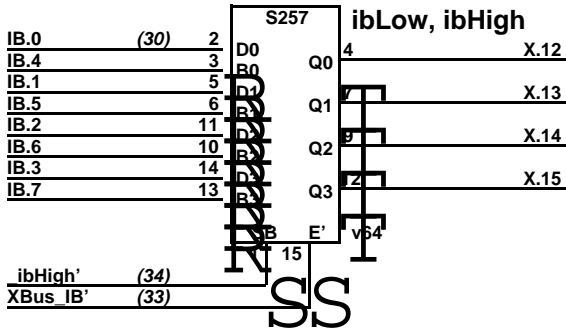
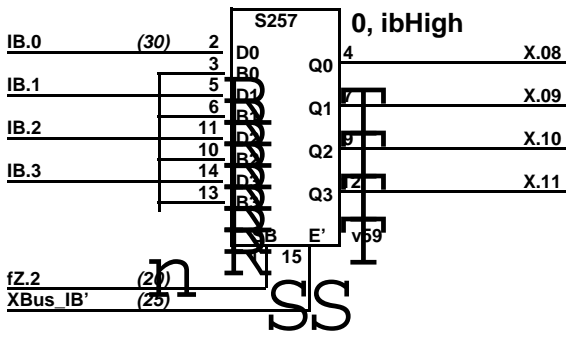
25	^ to EnLRotn'
21	25S10 OE
10	X-bus
56 nS	

20	^ to fZ.2
20	25S10 Select to X-bus
10	X-bus
50 nS	

LRotn disable X-bus

25	^ to EnLRotn'
15	25S10 OE' to X-bus
10	X-bus
50 nS	

Warning: This drawing contains font 4 macros!



IB disable X-bus

25 ^ to XBus_IB'
14 S257 E' to X-bus
10 X-bus
49 nS

Byte disable X-bus

25 ^ to Nibble'
14 S257 E' to X-bus
10 X-bus
49 nS

Nibble disable X-bus

25 ^ to Nibble'
15 S241 EN' to X-bus
10 X-bus
50 nS

Xbus_IB=max(56,56,59) nS

34[4] ^ to IB
8 S257 data to Xbus
10 X-bus
52[4] = 56 nS

25 ^ to Xbus_IB'
21 S257 E' to Xbus
10 X-bus
56 nS

34 ^ to_ibHigh'
15 S257 SB to Xbus
10 X-bus
59 nS

Xbus _ Nibble = max(39, 50) nS

20 ^ to fZ
9 S241 data to X-bus
10 X-bus
39 nS

25 ^ to Nibble'
15 S241 EN' to X-bus
10 X-bus
50 nS

Xbus _ Byte = max(38, 56,50) nS

20 ^ to fY
8 S257 data to X-bus
10 X-bus
38 nS

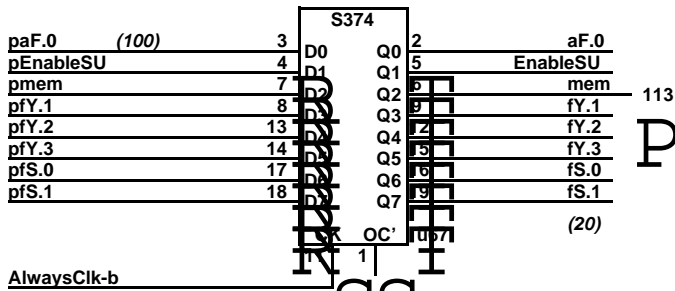
25 ^ to Nibble'
21 S257 E' to X-bus
10 X-bus
56 nS

25 ^ to Byte'
15 S257 SB to Xbus
10 X-bus
50 nS

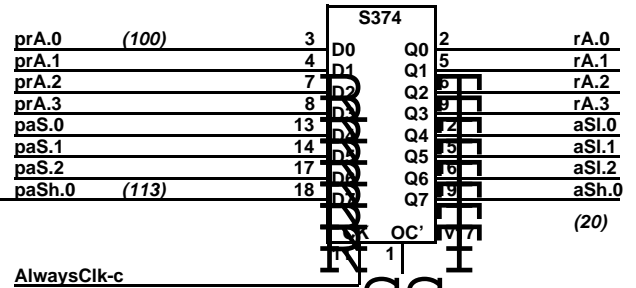
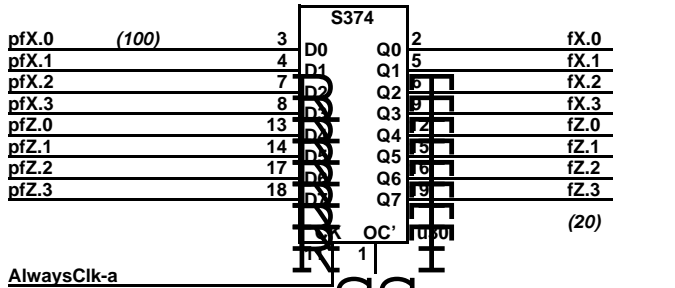
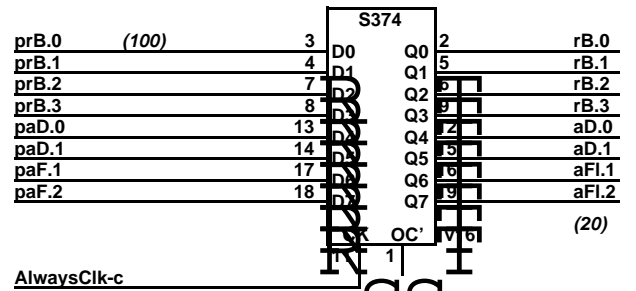
See stackP timings for ErrIBPtr

Warning: This drawing contains font 4 macros!

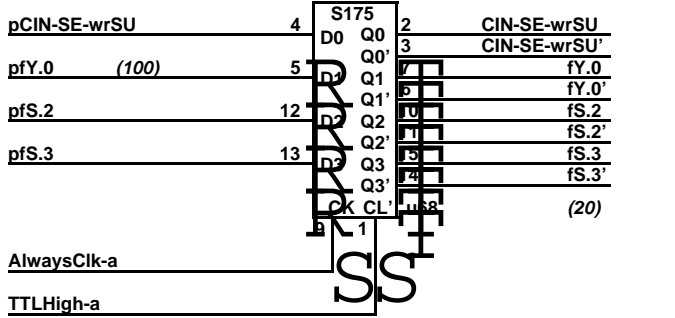
aF.0, EnSU, mem, fY, fS



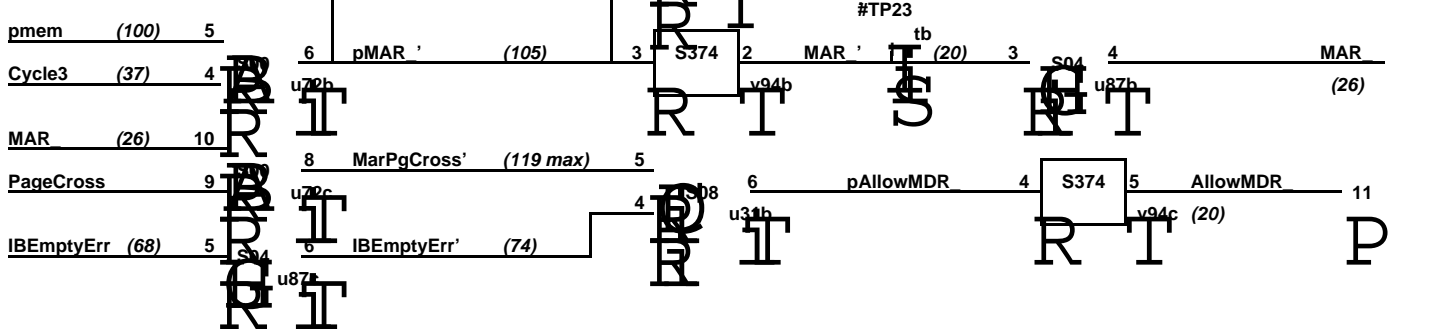
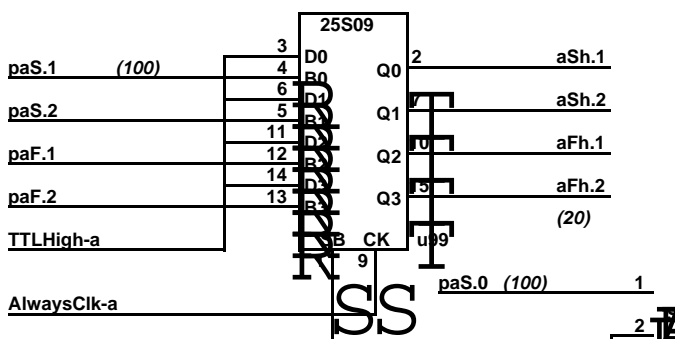
rB, aD, aFI

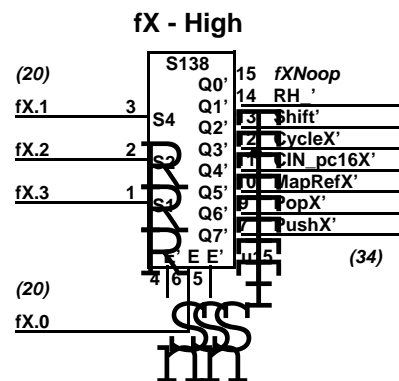
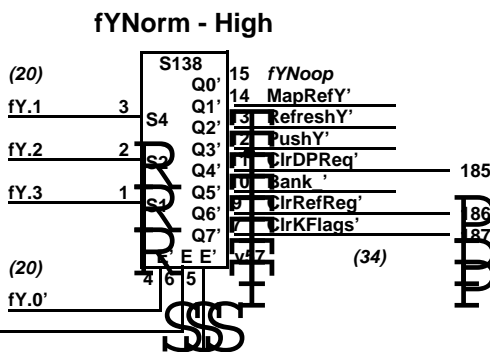
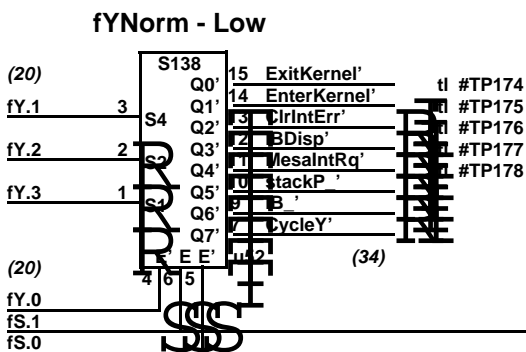


Cin, fY.0, fS



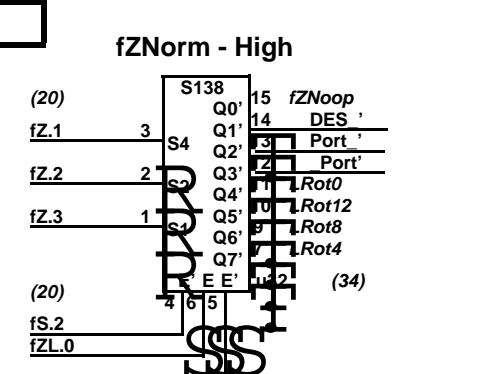
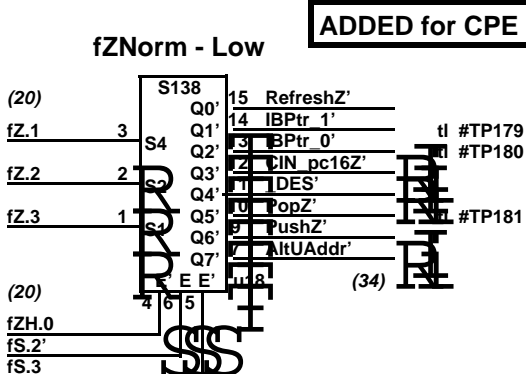
aSh, aFh





Bank_ replaces ClrIOPReq', which was connected to 184 on backplane

fX - Low is pCall/pRet



Notes on 16K CP additions:

Note that Bank_ is fY=D, not fZ=4, as stated in the Dandelion Hardware Manual!

Bank_ replaces ClrIOPReq', which is now obsolete. ClrIOPReq' was also connected to backplane pin 184.

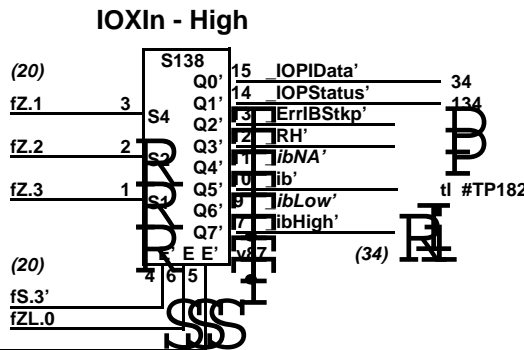
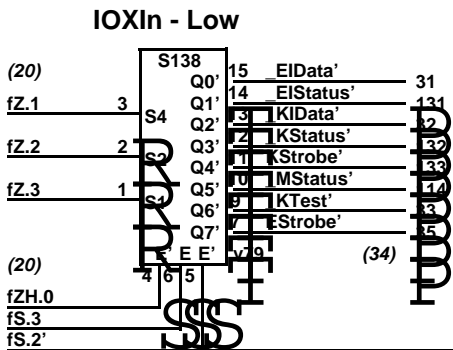
The meaning of Des_YBus' depends on which cycle it is activated in:

- Des_YBus' in C2 means Write Des Address
- Des_YBus' in C1 or C3 means Write Des Data

XBus_Des' can be activated in any cycle
 See page sCPE31 for details of DES logic

The fZNorm-High decoder has been added in the 16K CP to derive the DES decodes.

There are 2 spare fZ decodes available for future expansion

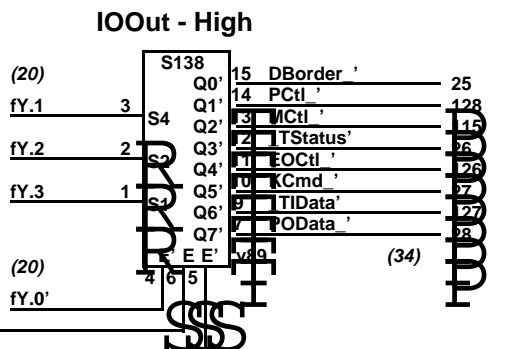
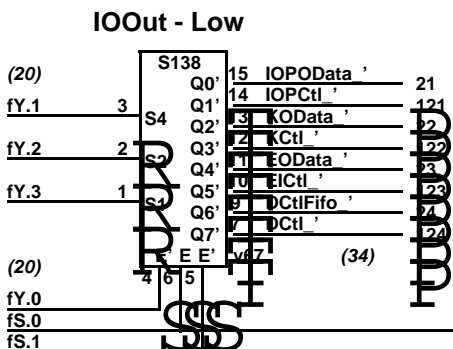


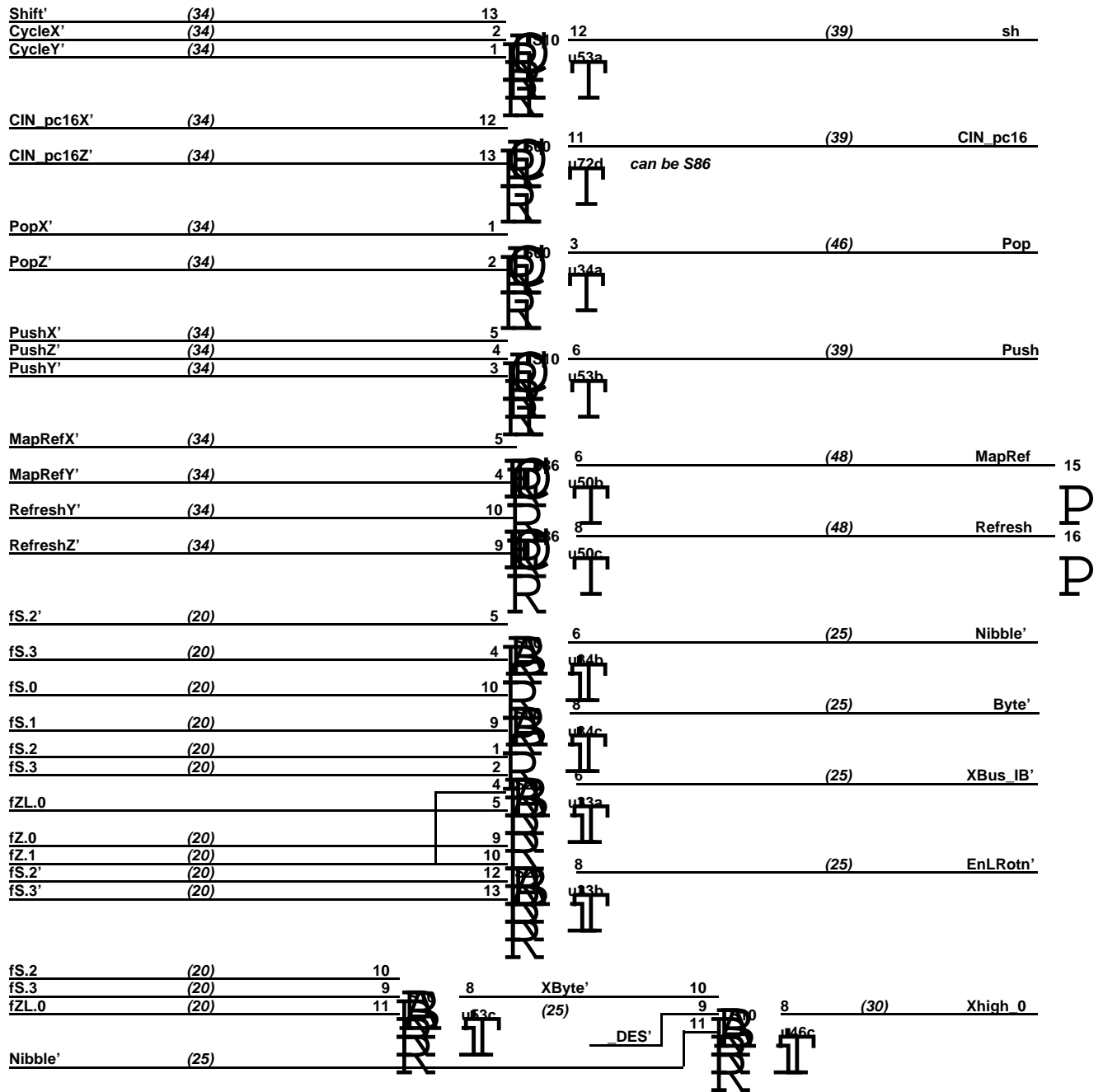
S138 Timing:

Propagation delays

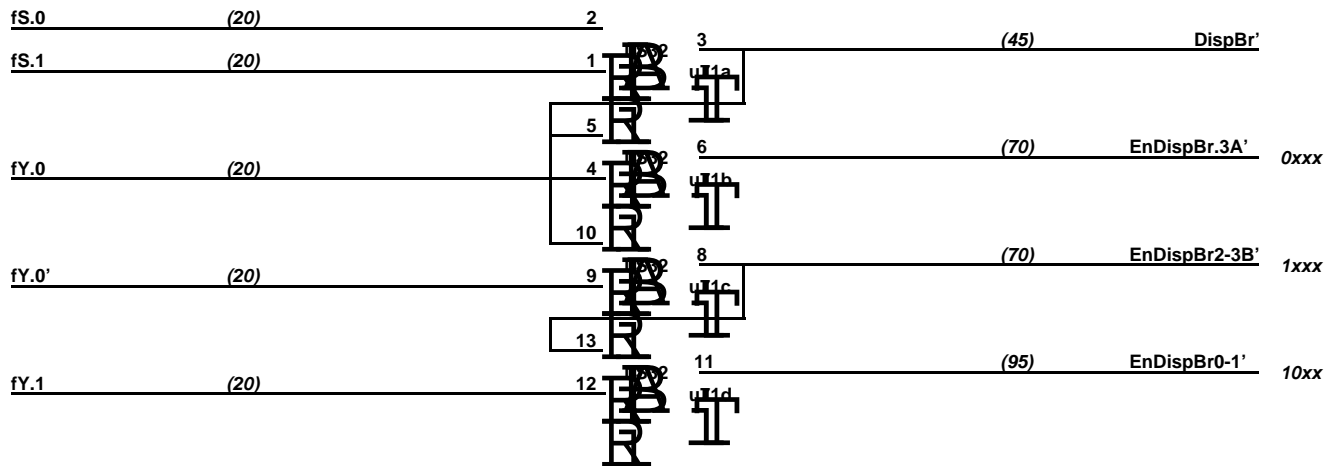
- from Selects to Q' 14nS
- from Enables to Q' 13nS

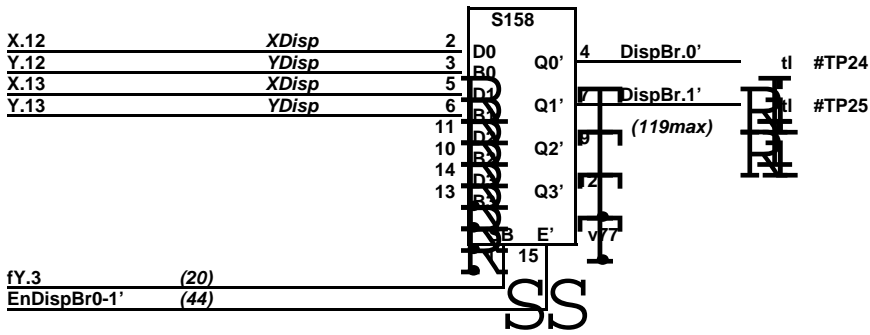
These timings are very conservative!





EnDispBr



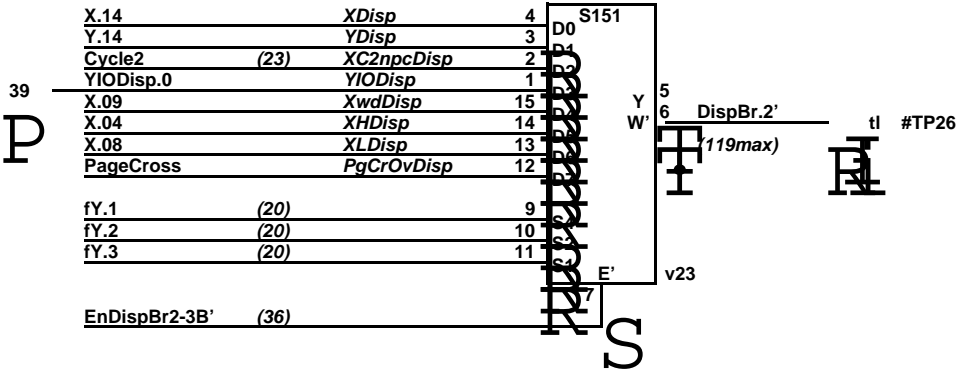


DispBr[0-1] = max(c+32,69,133)

20 ^ to fY
 24[3] S151 select to DispBr
 18 DispBr' setup
 64[3]=69

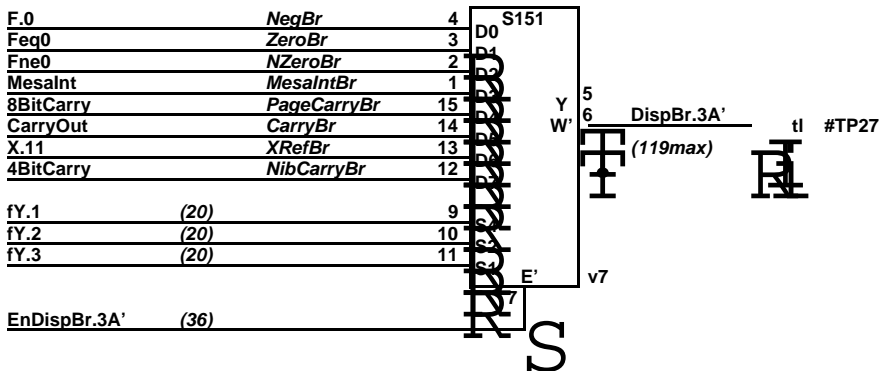
95 ^ to EnDispBr0-1'
 18[2] S151 E' to DispBr
 18 DispBr' setup
 131[2] = 133 nS

c condition source
 12[2] S151 data to DispBr
 18 DispBr' setup
 c+30[2]= c+32



DispBr Setup

5 S00 in to pTC
 6[1] S64 in to pNIA
 5[1] 25S09/S374 setup
 18 nS

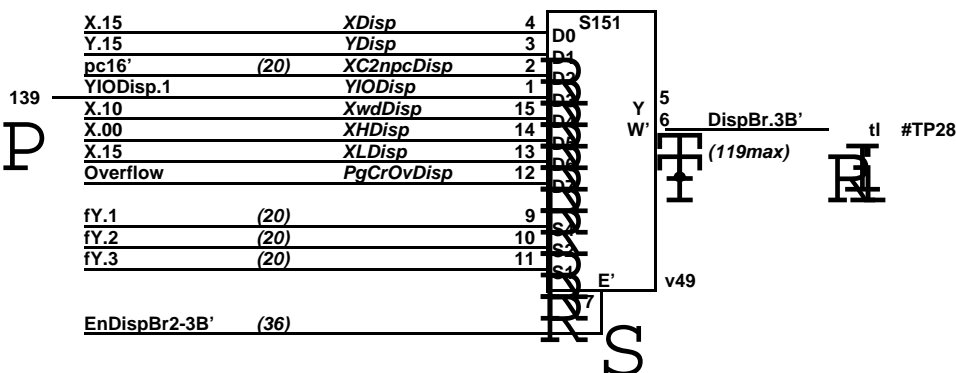


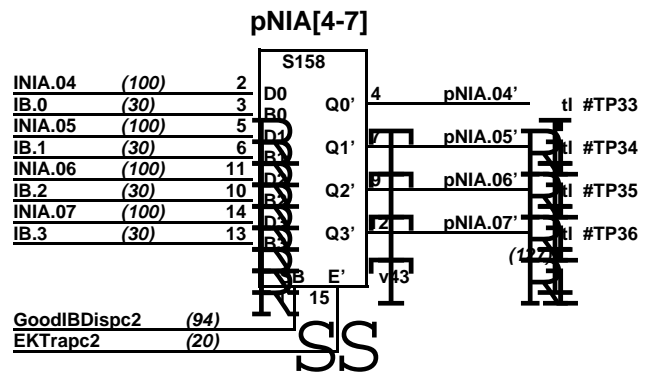
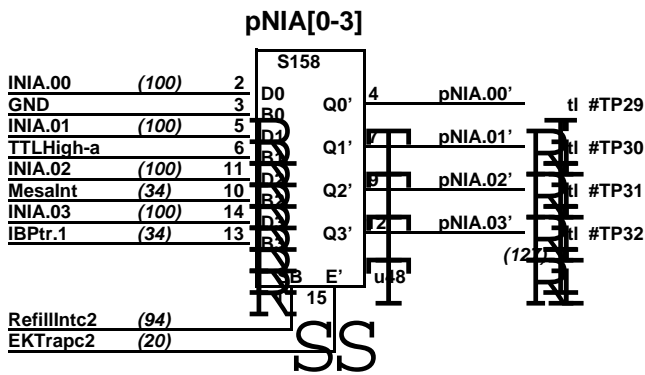
DispBr[2-3]=max(c+26,55,103)

20 ^ to fY
 15[2] S151 select to DispBr
 18 DispBr' setup
 51[4]=55 nS

70 ^ to EnDispBr.3A'
 13[2] S151 E' to DispBr
 18 DispBr' setup
 101[2] = 103 nS

c condition source
 7[1] S151 data to DispBr
 18 DispBr' setup
 c+23[3]=c+26 nS





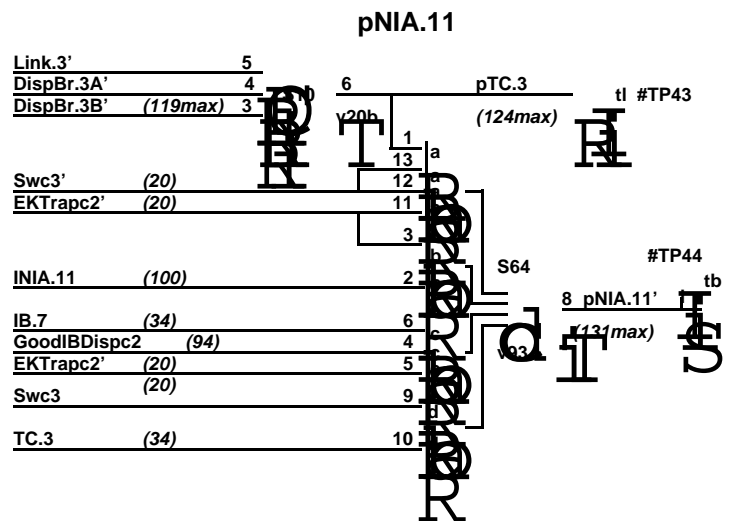
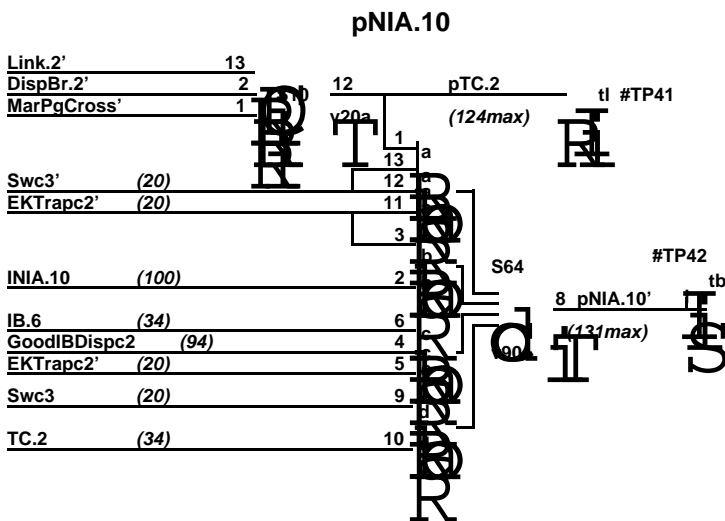
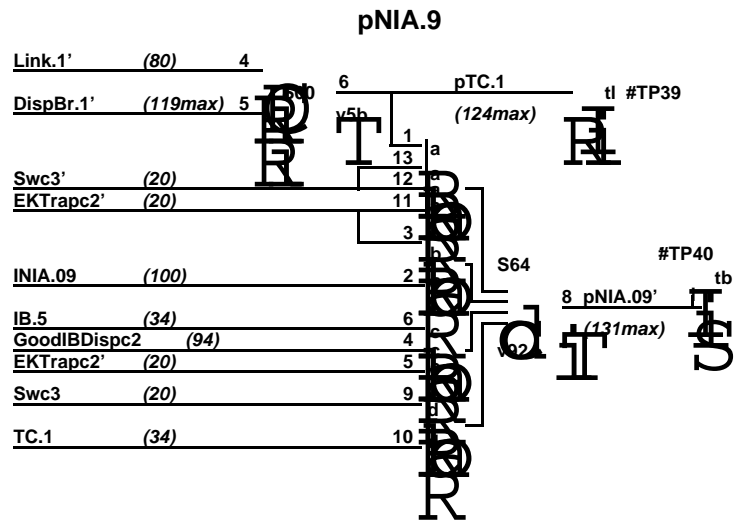
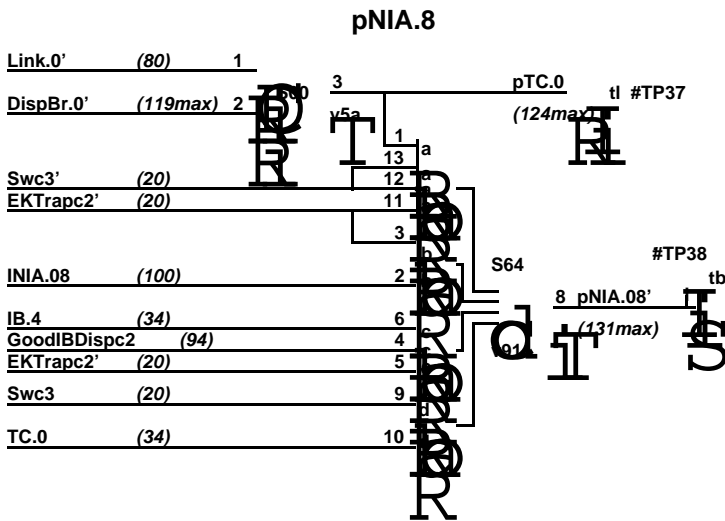
pNIA[0-7]=max(127, 120, 46) nS

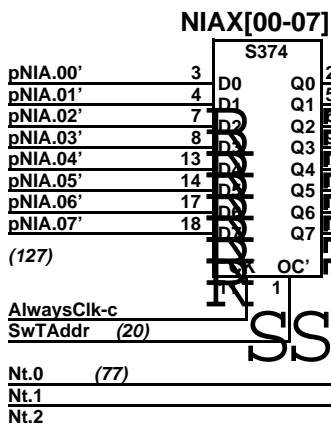
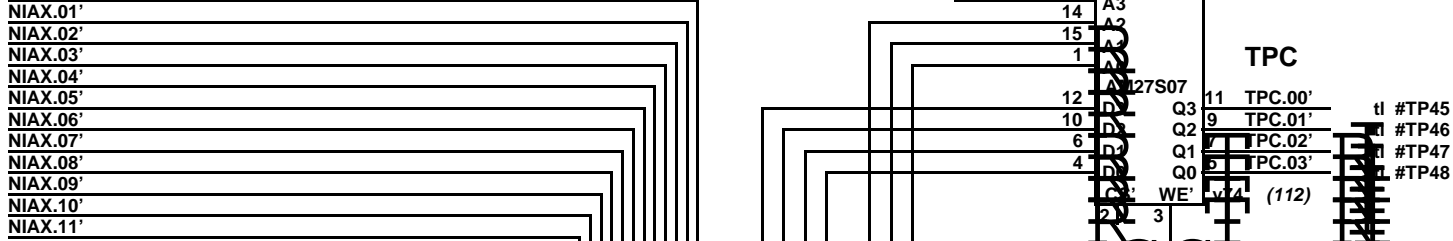
94 ^ to RefillIntc2
 24[3] LS158 SB to pNIA'
 5[1] 25S09/S374 setup
 123[4]=127 nS

100 ^ to INIA
 12[2] LS158 data to pNIA'
 5[1] 25S09/S374 setup
 117[3]=120 nS

20 ^ to EKErrc2
 18[2] LS158 E' to pNIA'
 5[1] 25S09/S374 setup
 43[3]=46nS

(See page 11 for pNIA[8-11] timing)





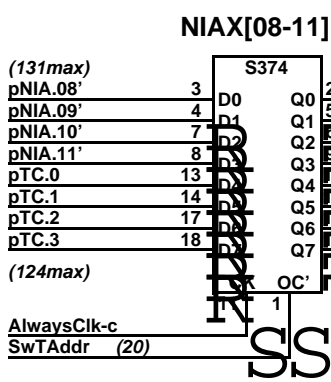
Link timing

- 20 ^ to fX
- 35 Am27S07 tAA
- 22[3] pLink' to Link'
- 18 DispBr' setup
- 95[3]= 98 nS

- 20 ^ to fX.0, NIAX.7'
- 22[3] fX.0 to pRet'
- 22[3] pRet' to Link'
- 18 DispBr' setup
- 82[6] = 88 nS

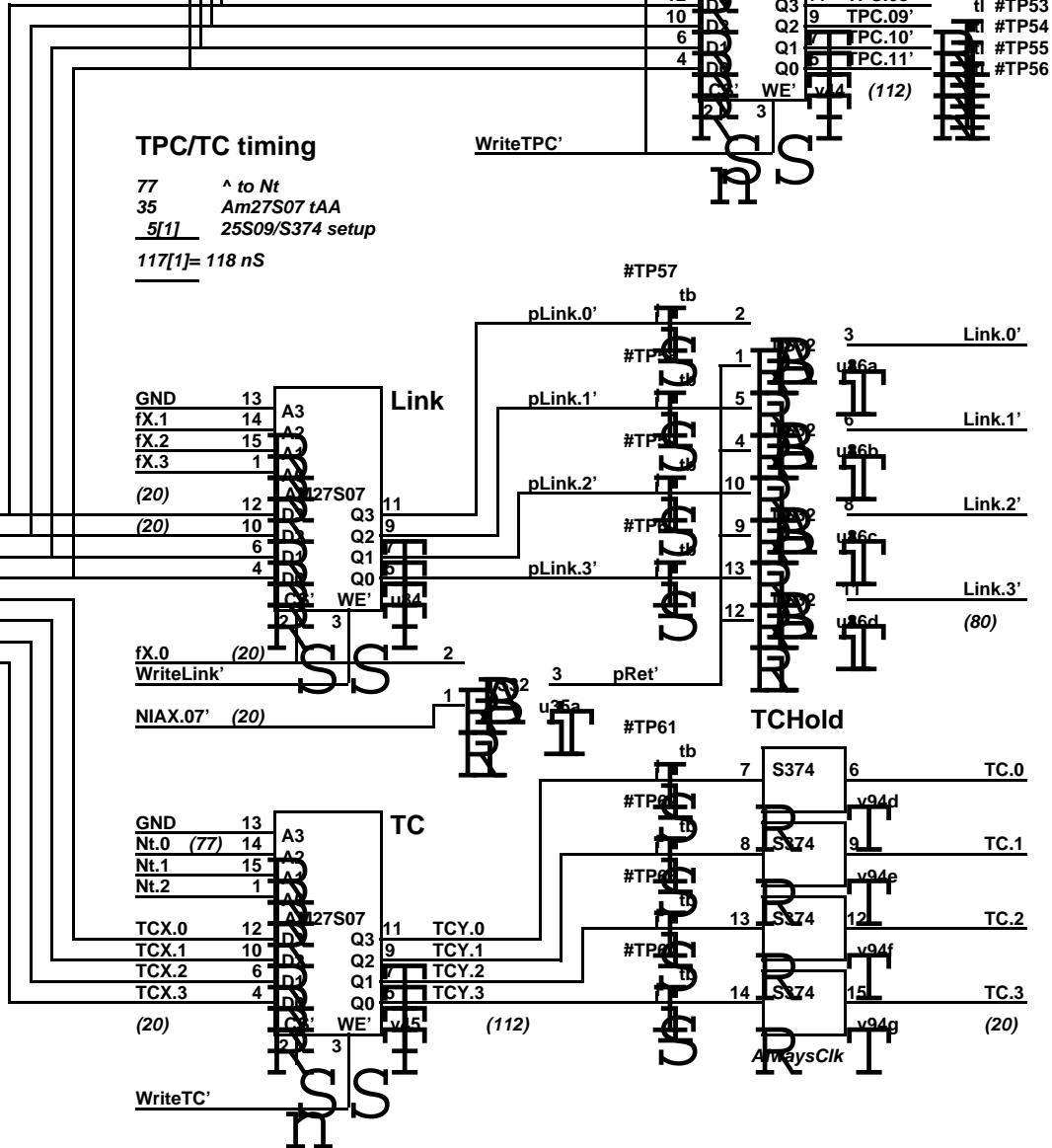
TPC/TC timing

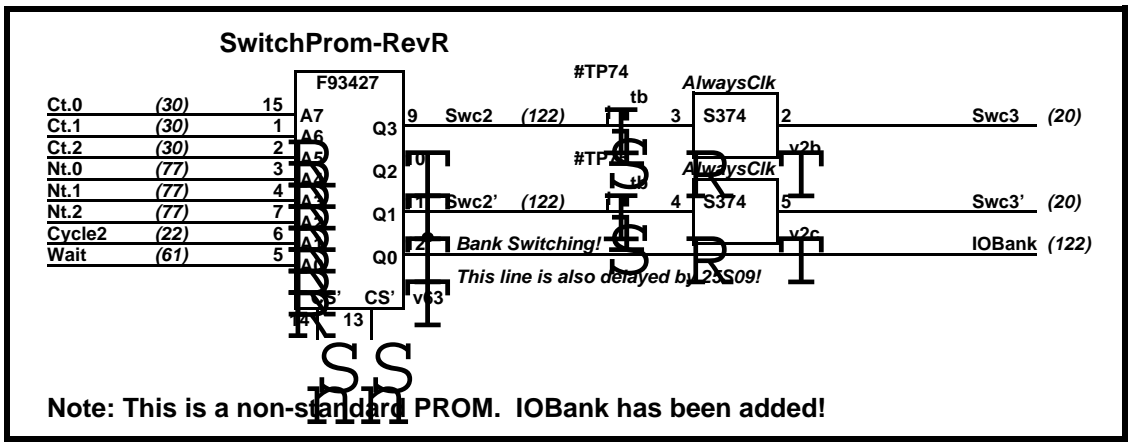
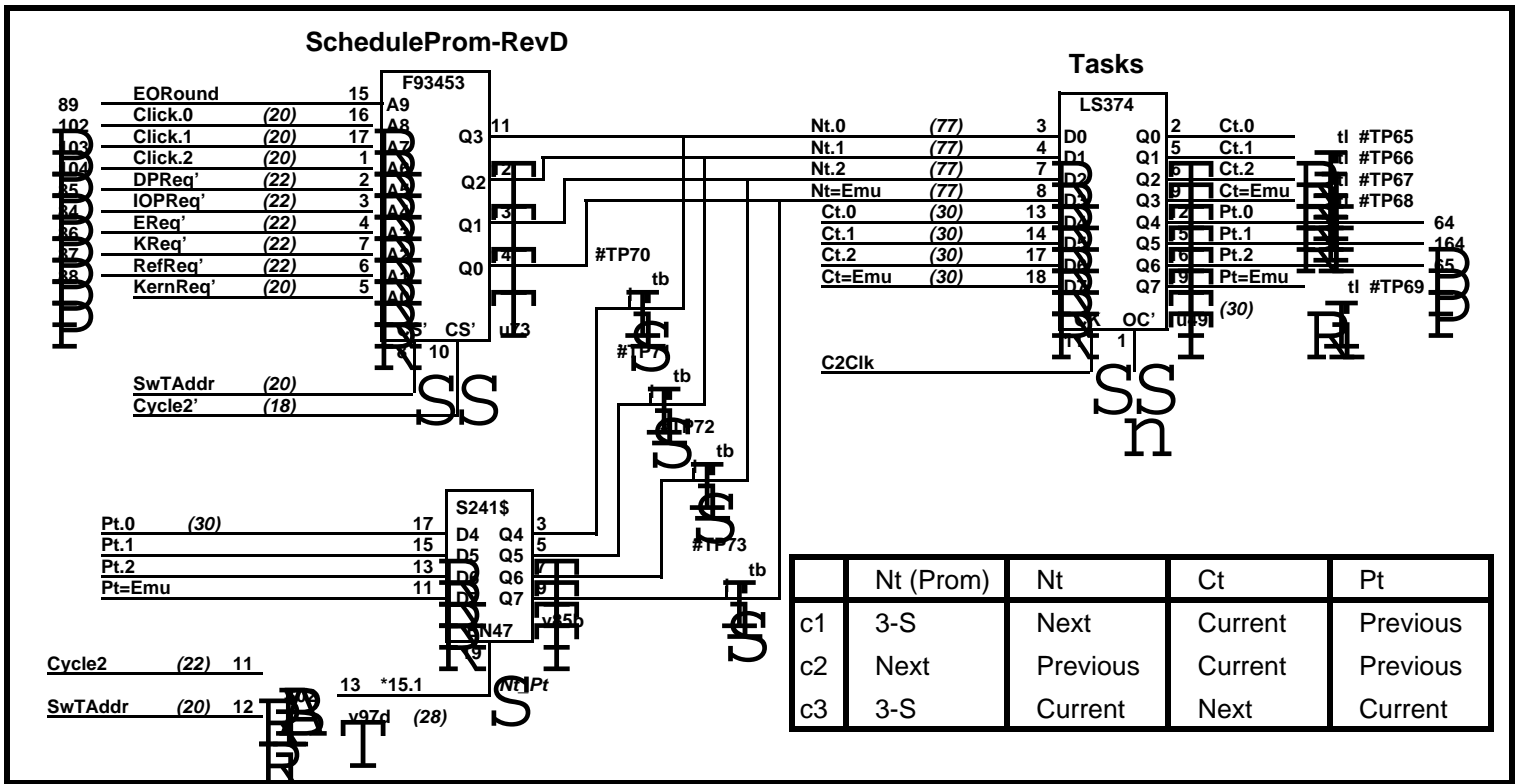
- 77 ^ to Nt
- 35 Am27S07 tAA
- 5[1] 25S09/S374 setup
- 117[1]= 118 nS



If only pullups were used on output of Link (instead of the LS32 kludge), then Link timing would be:

- 98 WriteLink' active
- 25[3] WE' to pLink high
- 18 DispBr' setup
- 141[3] = 144 nS





Task Numbers

0	Emulator
1	Display/LSEP
2	Ethernet
3	Refresh
4	Disk
5	IOP
6	Control Store R/W
7	Kernel

Swc2 timing=max(133,101,101)

22	^ to Kreq'	20	^ to SwTAddr	28	^ to Nt_Pt
55	F93453 addr to Nt	25	F93453 CS' to Nt	15[2]	S241 EN to Nt
45	F93427 addr to Swc2	45	F93427 addr to Swc2	45	F93427 addr to Swc2
10[1]	25S09 SB setup	10[1]	25S09 SB setup	10[1]	25S09 SB setup
132[1]=133 nS		100[1]=101 nS		98[3]=101 nS	

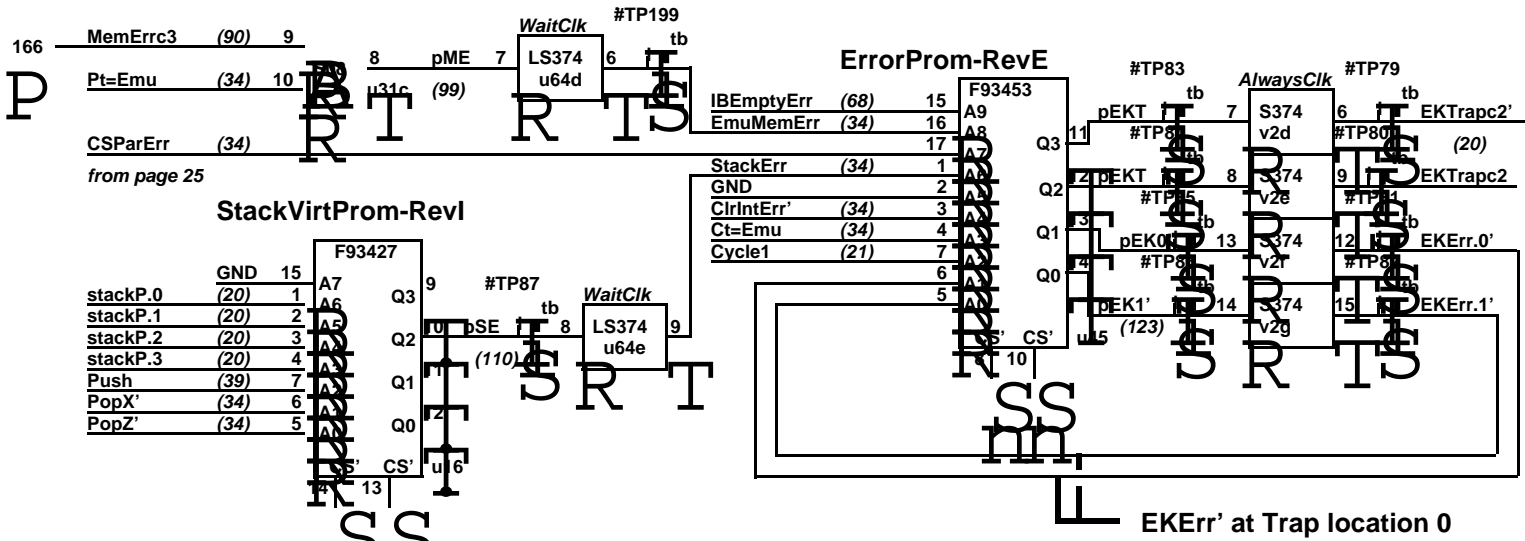
Click Assignment

0	Ethernet
1	Disk
2	IOP
3	Ethernet/Disk
4	Display/LSEP/Rfrsh

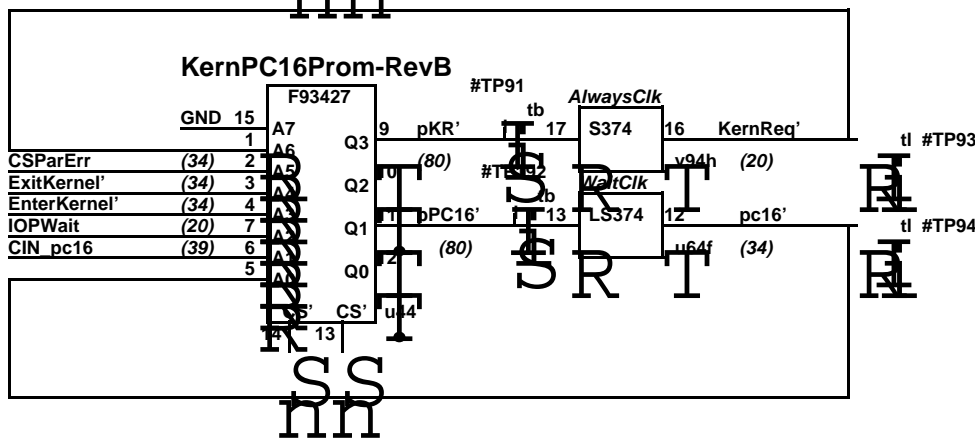
Notes:

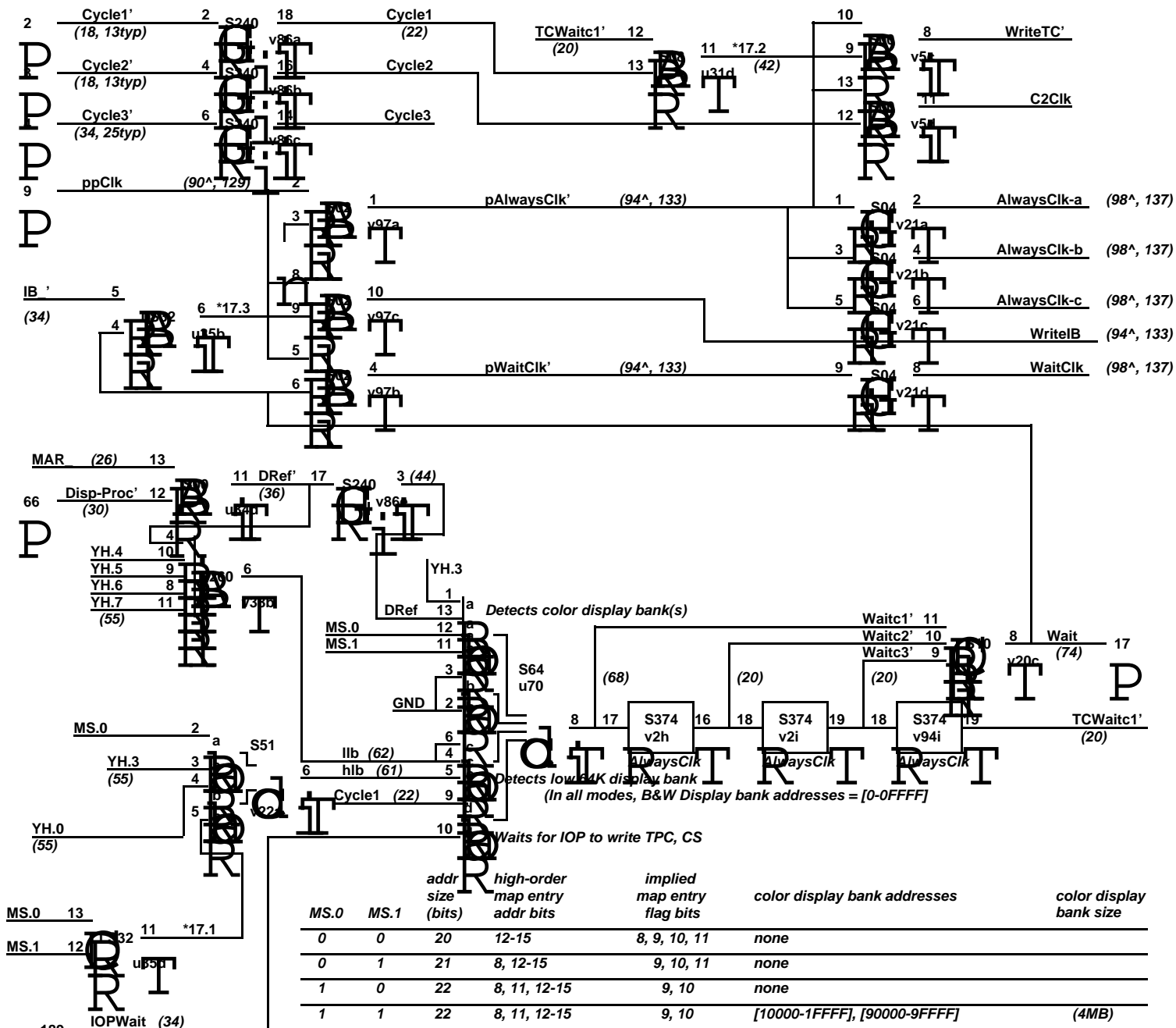
- When Disk = SA4000, Click 3 is Ethernet only.
- When Disk = Trident, Click 3 is Ethernet on even rounds, Trident on Odd rounds (ie, 10-click round)
- The Display & LSEP-refresh tasks never both use Click 4

Warning: This drawing contains font 4 macros!

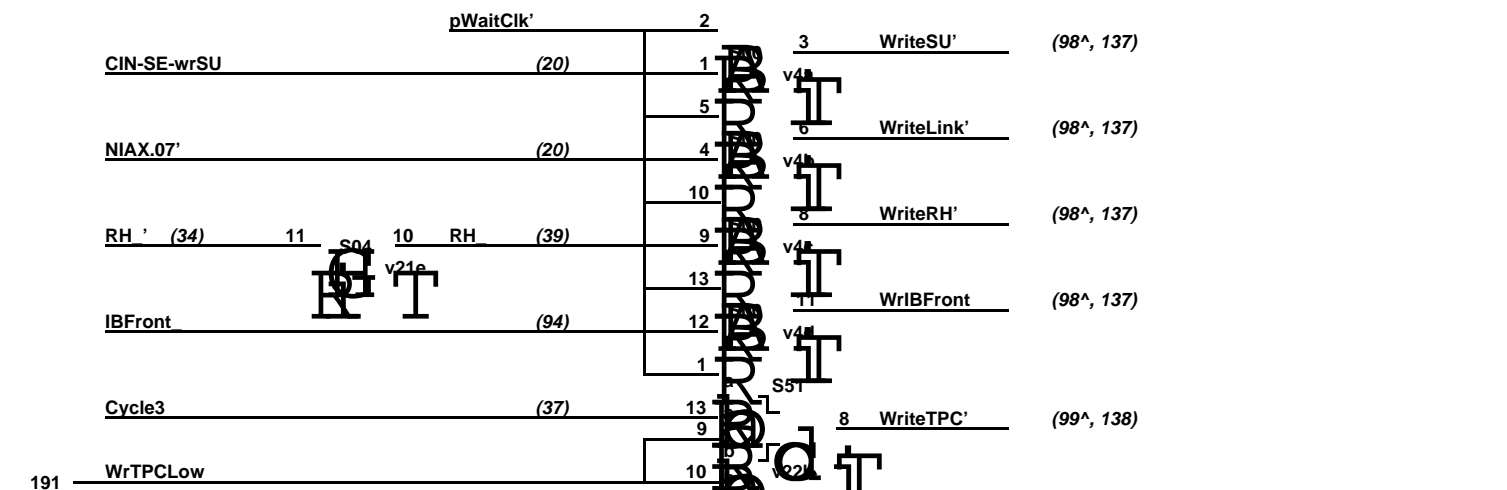


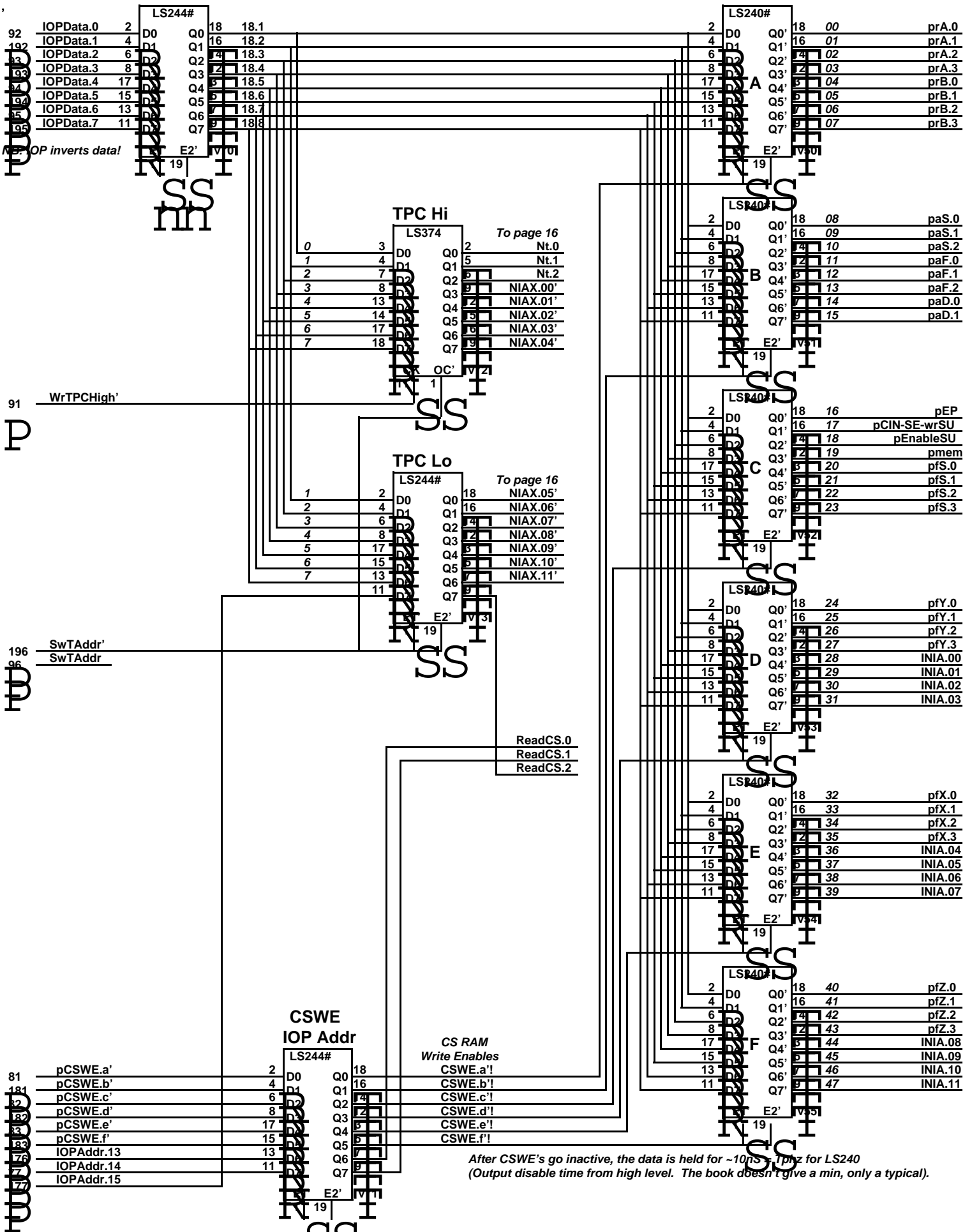
0	IB Empty
1	Stack
2	Emulator Memory
3	CS Parity

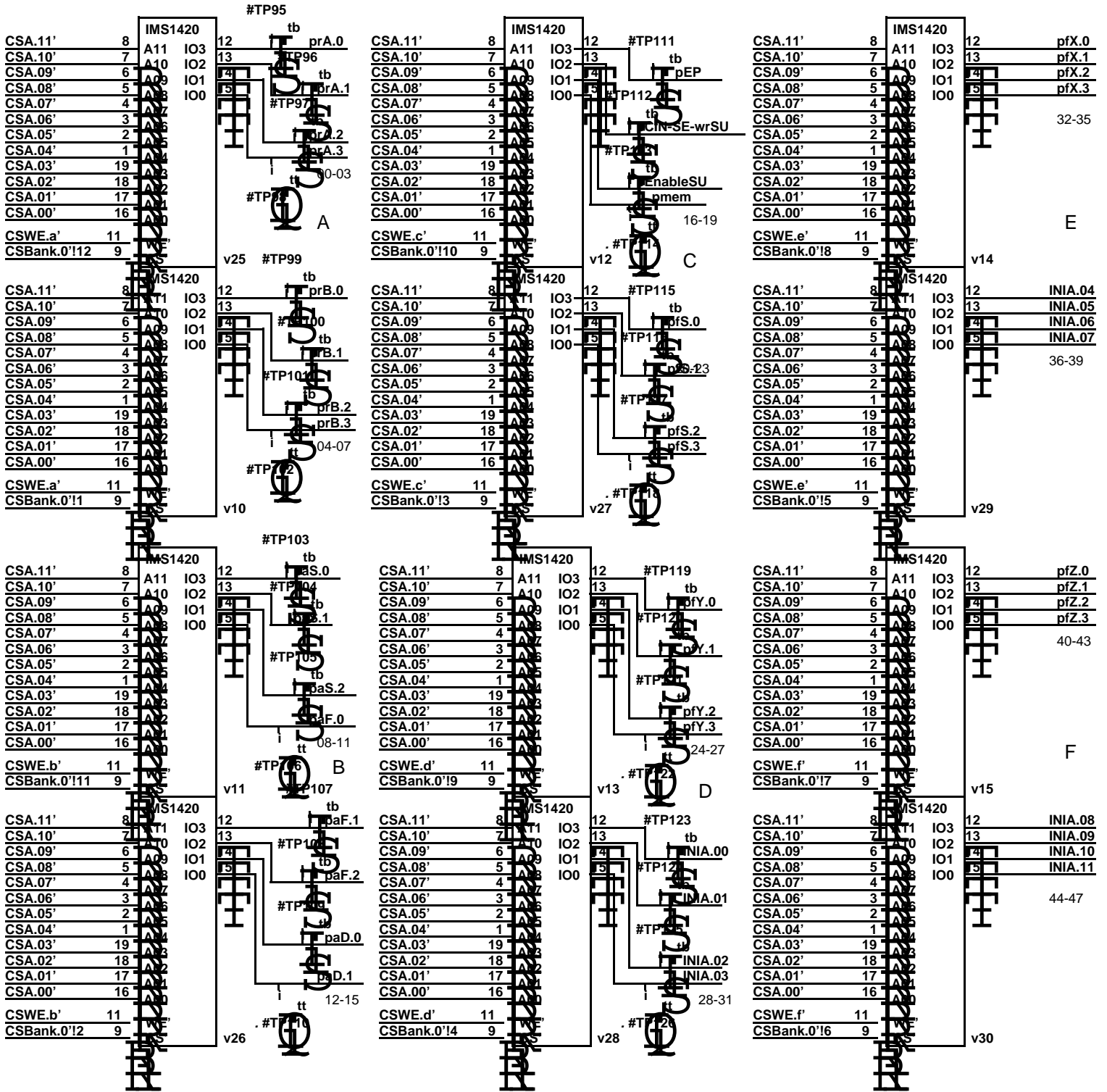




YH.0=X.8, YH[1-2]=X[9-10], YH.3=X.11





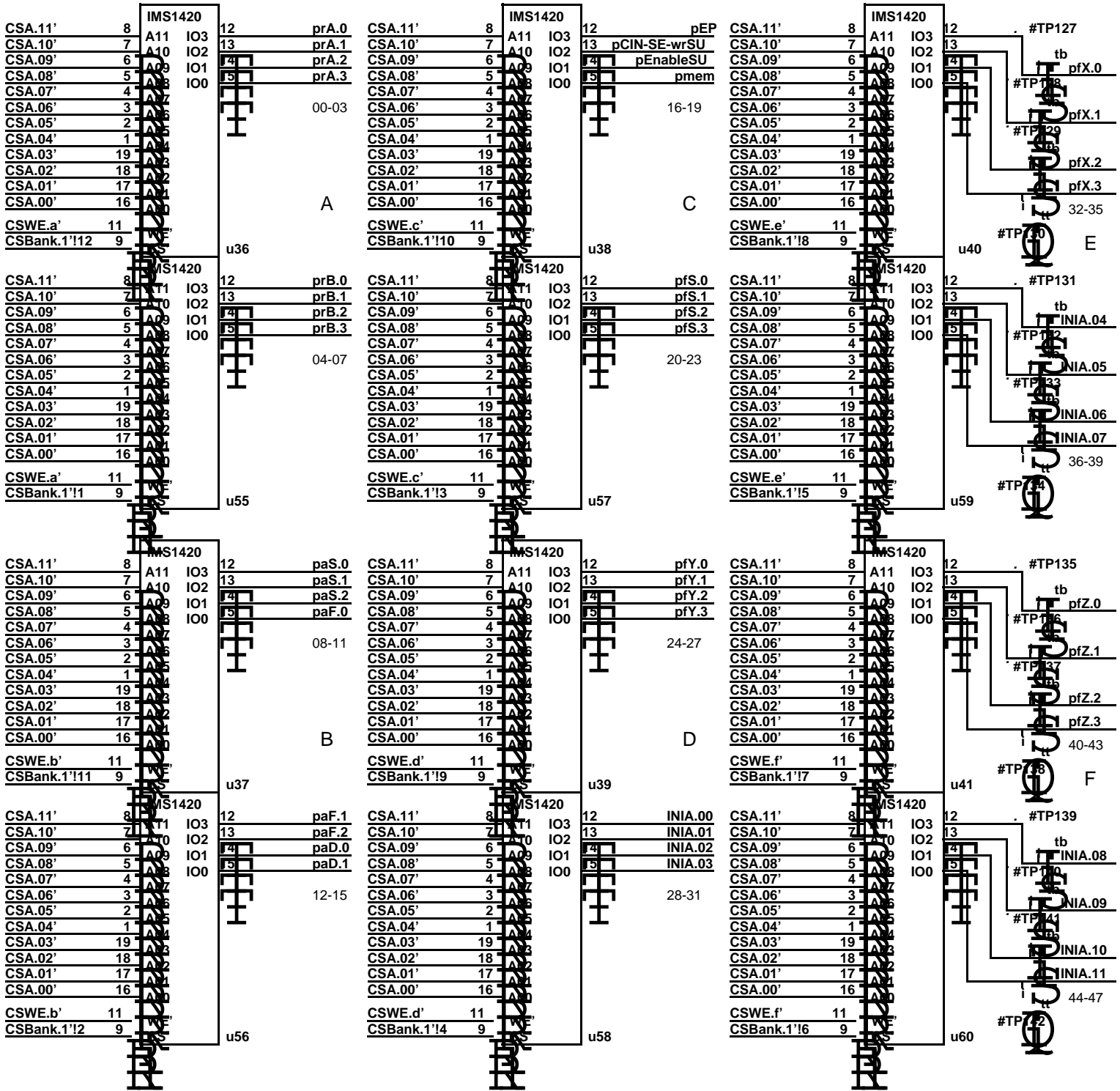


READ		WRITE - Data Hold	
Clock to CSA' valid	17	tPLH for LS240	12
Transmission Delay	13	tPZ for LS244	10
tAA for IMS 1420-55	50		
CS Data valid at	80		22

This suggests that IMS 1420-70 would also work without any trouble.

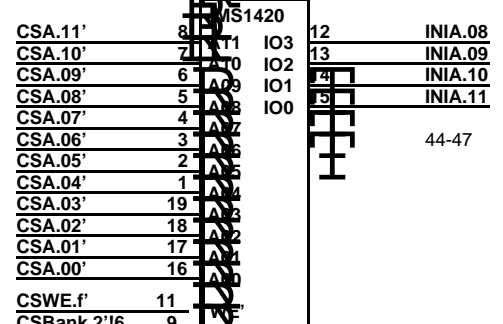
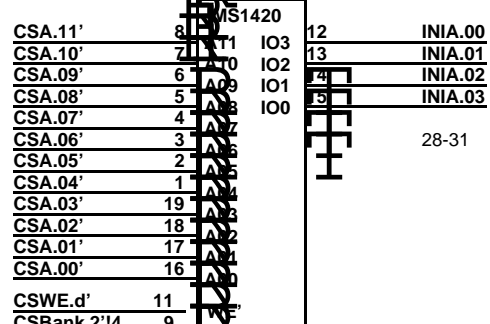
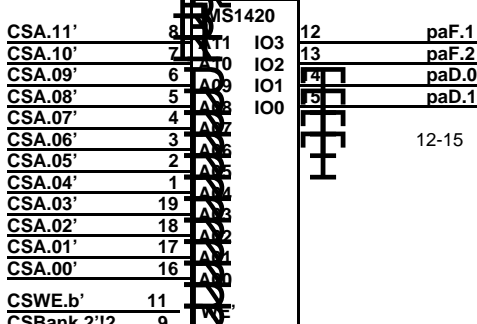
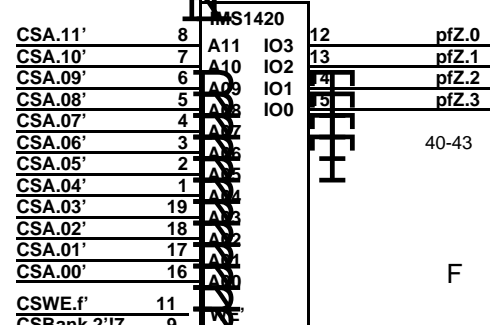
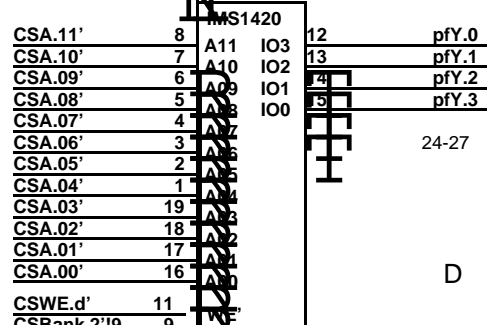
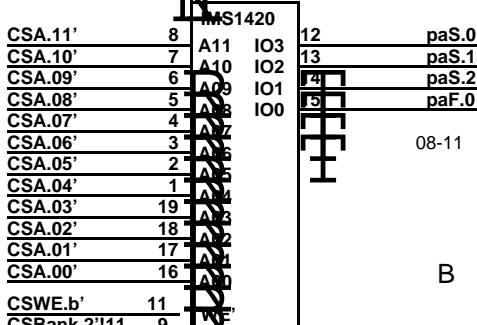
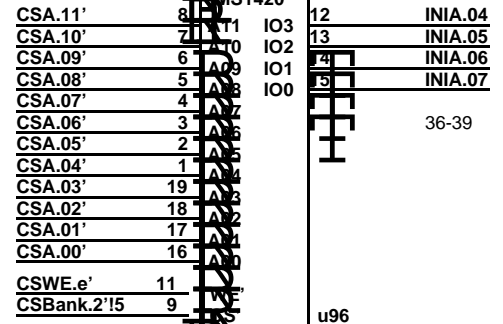
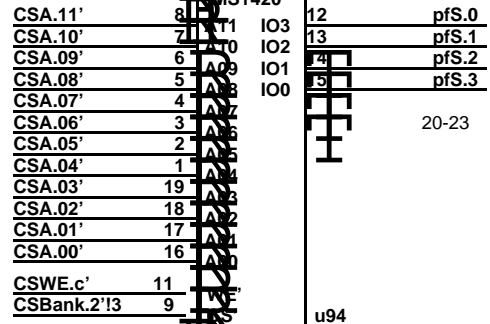
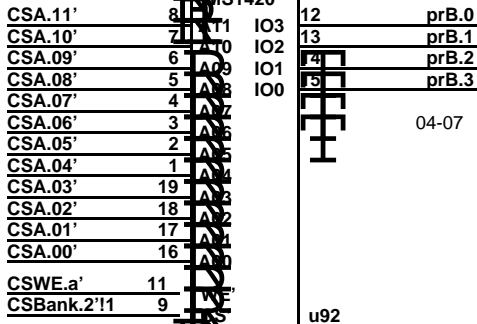
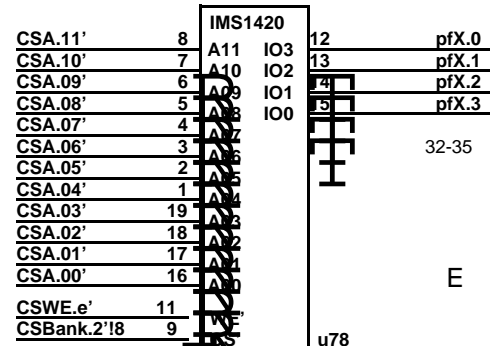
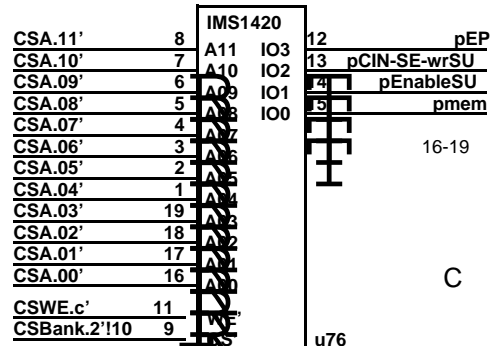
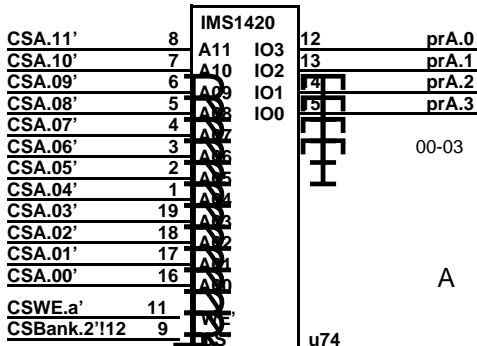
Warning: This drawing contains font 4 macros!

XEROX	PROPRIETARY NOTE ON COVER SHEET APPLIES TO ALL SHEETS	DWG SIZE	DWG NO. 156P12560	SHEET REV.
	TITLE SCHEMATIC, CPE-PP	A4	SHEET 20 OF	A



Warning: This drawing contains font 4 macros!

XEROX	PROPRIETARY NOTE ON COVER SHEET APPLIES TO ALL SHEETS	DWG SIZE A4	DWG NO. 156P12560	SHEET REV. A
	TITLE SCHEMATIC, CPE-FP		SHEET 21 OF	



Warning: This drawing contains font 4 macros!

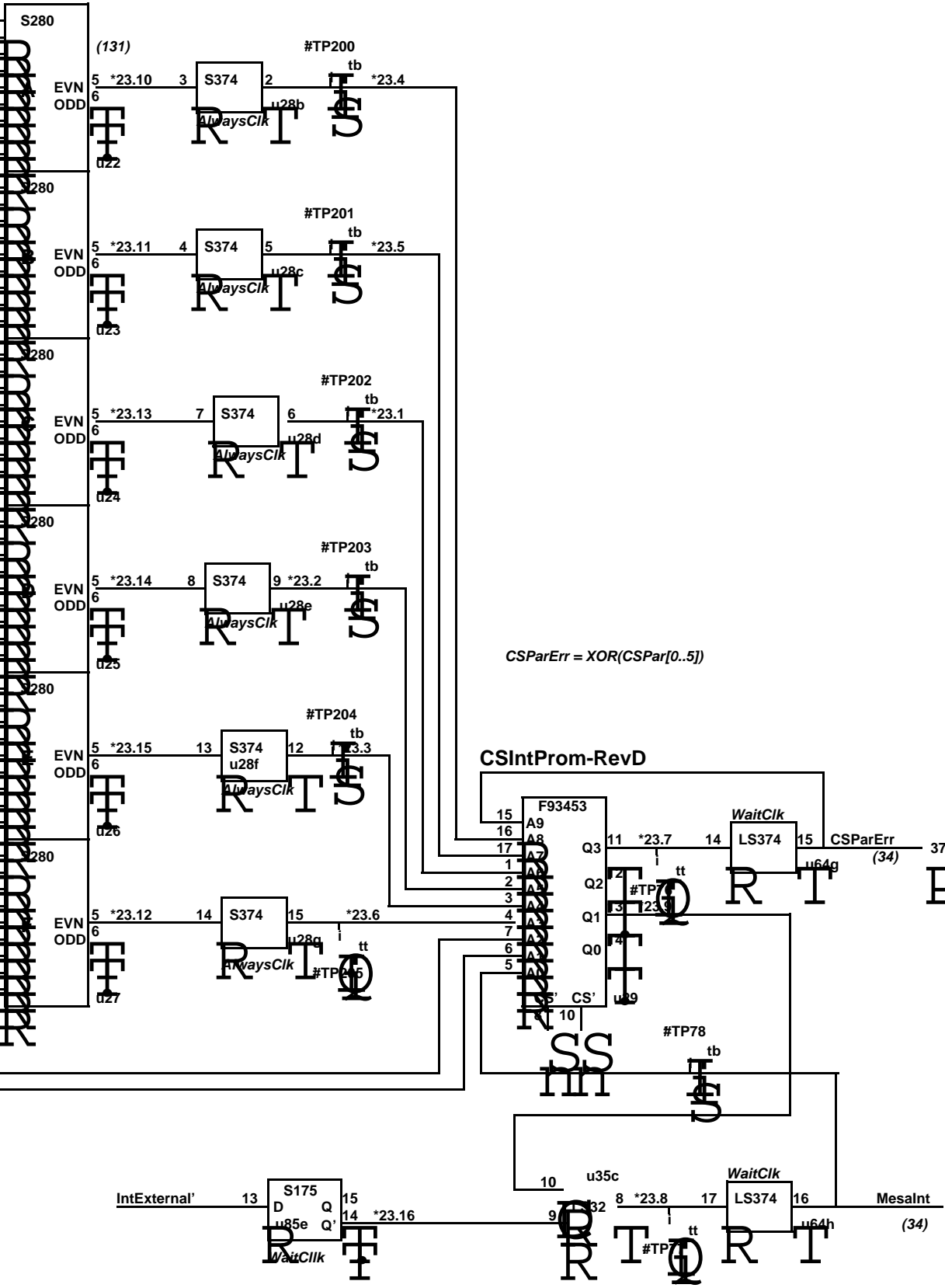
XEROX	PROPRIETARY NOTE ON COVER SHEET APPLIES TO ALL SHEETS	DWG SIZE A4	DWG NO. 156P12560	SHEET REV. A
	TITLE SCHEMATIC, CPE-FP		SHEET 22 OF	

The control Store has been removed to make room for the floating point module.

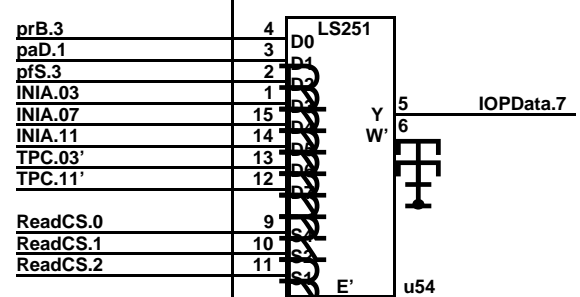
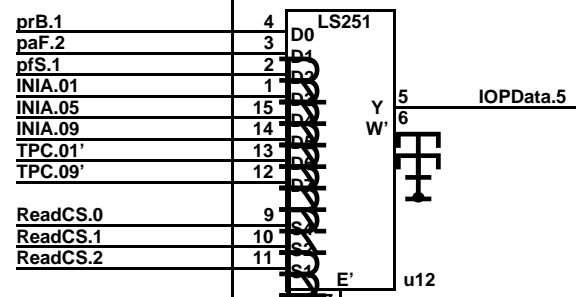
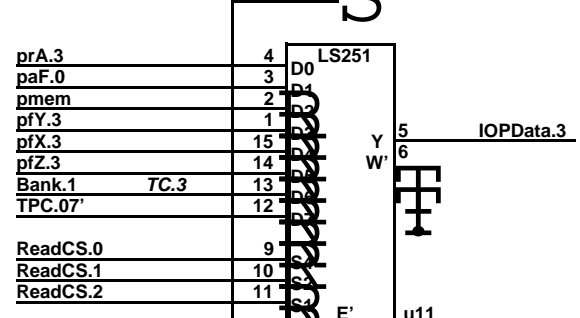
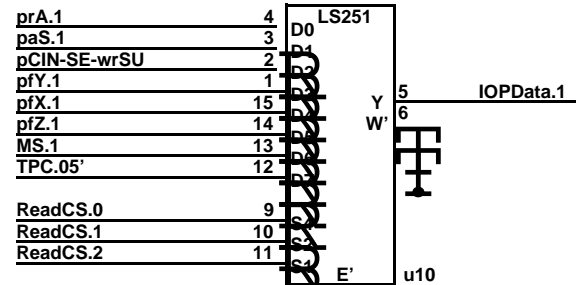
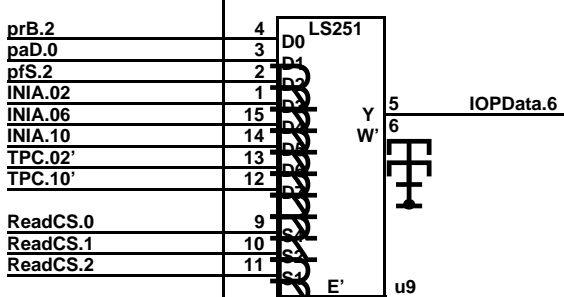
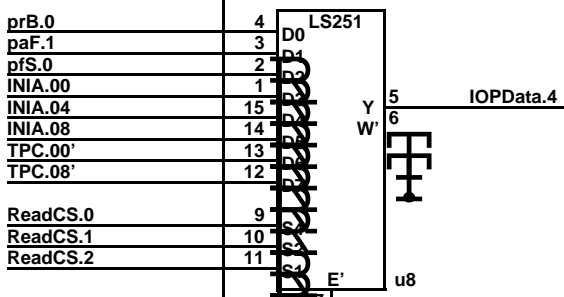
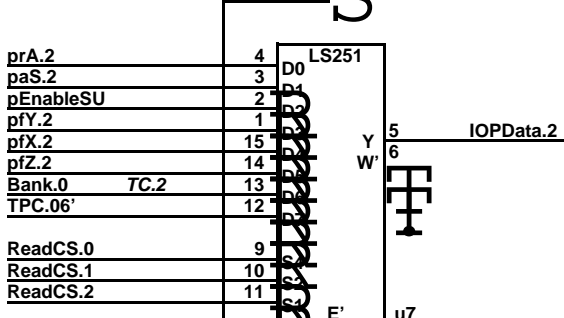
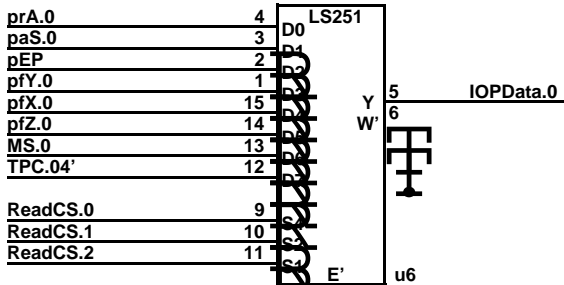
Warning: This drawing contains font 4 macros!

XEROX	PROPRIETARY NOTE ON COVER SHEET APPLIES TO ALL SHEETS	DWG SIZE A4	DWG NO. 156P12560		SHEET REV. A
	TITLE SCHEMATIC, CPE-FP		SHEET 23	OF	

prA.0	00	(100)	1
prA.1	01		2
prA.2	02		4
prA.3	03		8
prB.0	04		9
prB.1	05		10
prB.2	06		11
prB.3	07		12
			13
paS.0	08		1
paS.1	09		2
paS.2	10		4
paF.0	11		8
paF.1	12		9
paF.2	13		10
paD.0	14		11
paD.1	15		12
			13
pEP	16		1
pCIN-SE-wrSU			2
pEnableSU			4
pmem	19		8
pfS.0	20		9
pfS.1	21		10
pfS.2	22		11
pfS.3	23		12
			13
pfY.0	24		1
pfY.1	25		2
pfY.2	26		4
pfY.3	27		8
INIA.00	28		9
INIA.01	29		10
INIA.02	30		11
INIA.03	31		12
			13
pfX.0	32		1
pfX.1	33		2
pfX.2	34		4
pfX.3	35		8
INIA.04	36		9
INIA.05	37		10
INIA.06	38		11
INIA.07	39		12
			13
pfZ.0	40		1
pfZ.1	41		2
pfZ.2	42		4
pfZ.3	43		8
INIA.08	44		9
INIA.09	45		10
INIA.10	46		11
INIA.11	47		12
			13

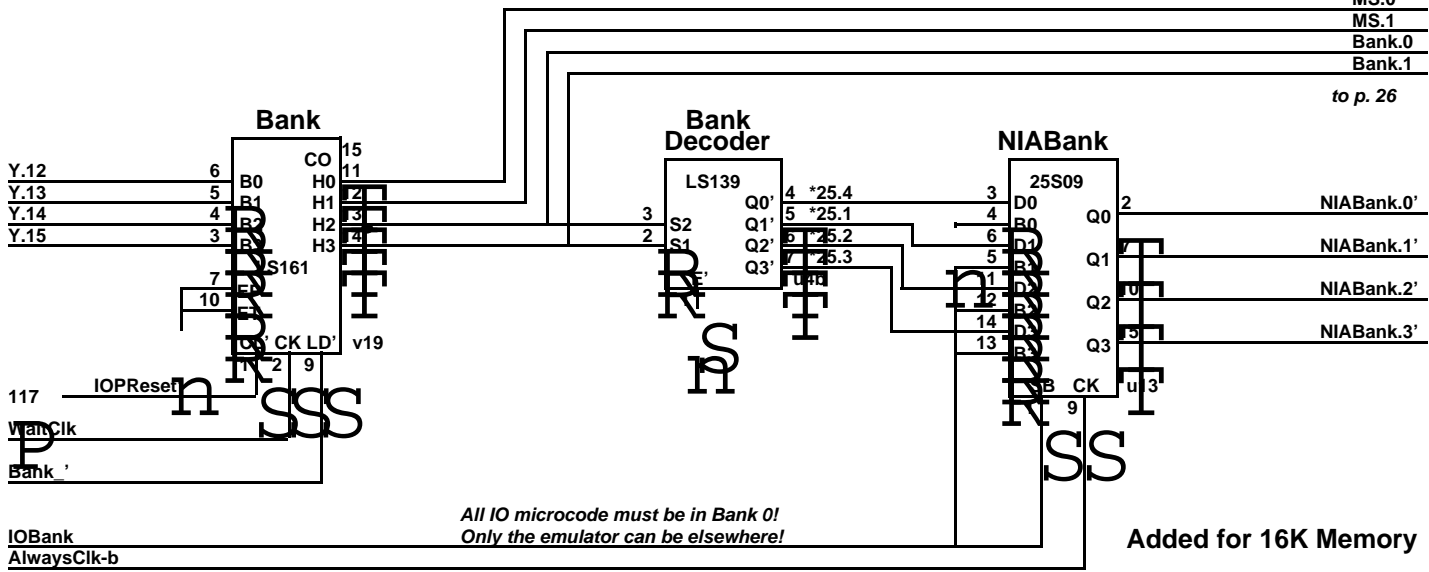


NB: TC[0-3] have been replaced by Bank[0-3].

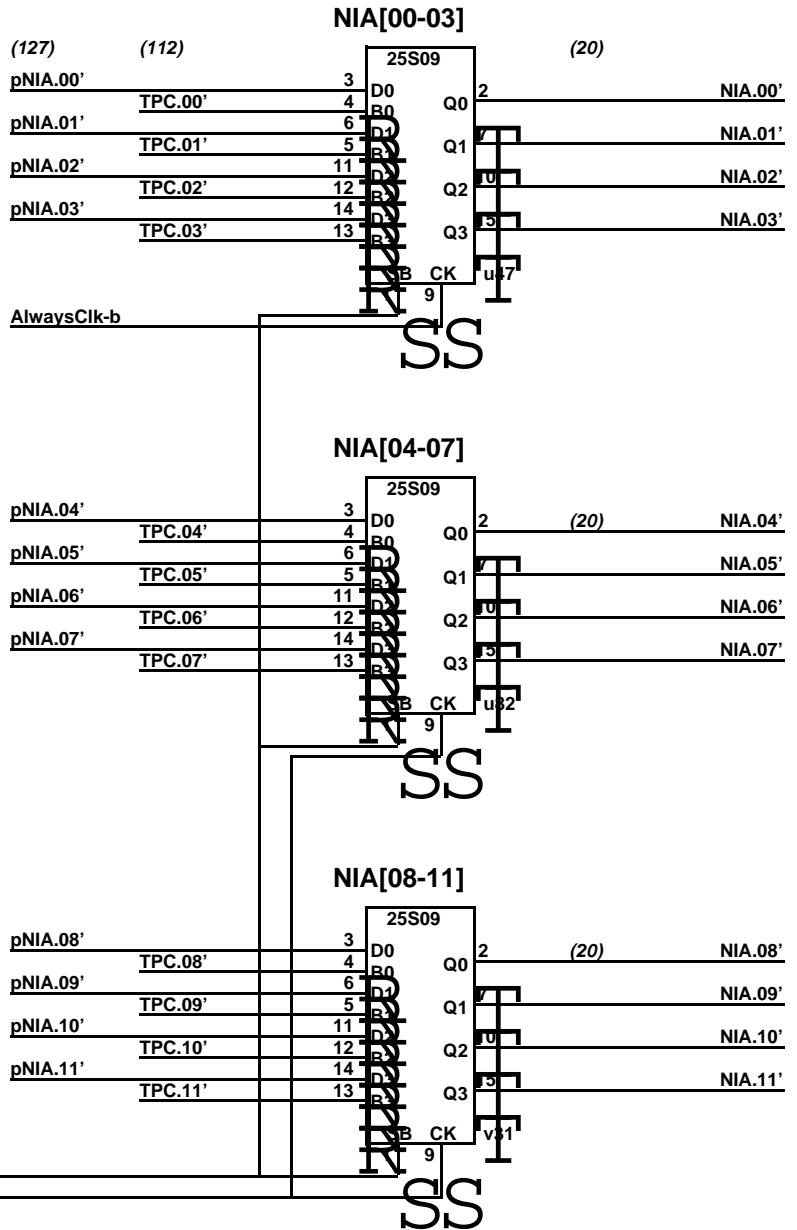


188
P

ReadCSEn'



This section is standard



NOTE on Control Store Addresses

The next instruction address for the control store comes from one of two basic places:

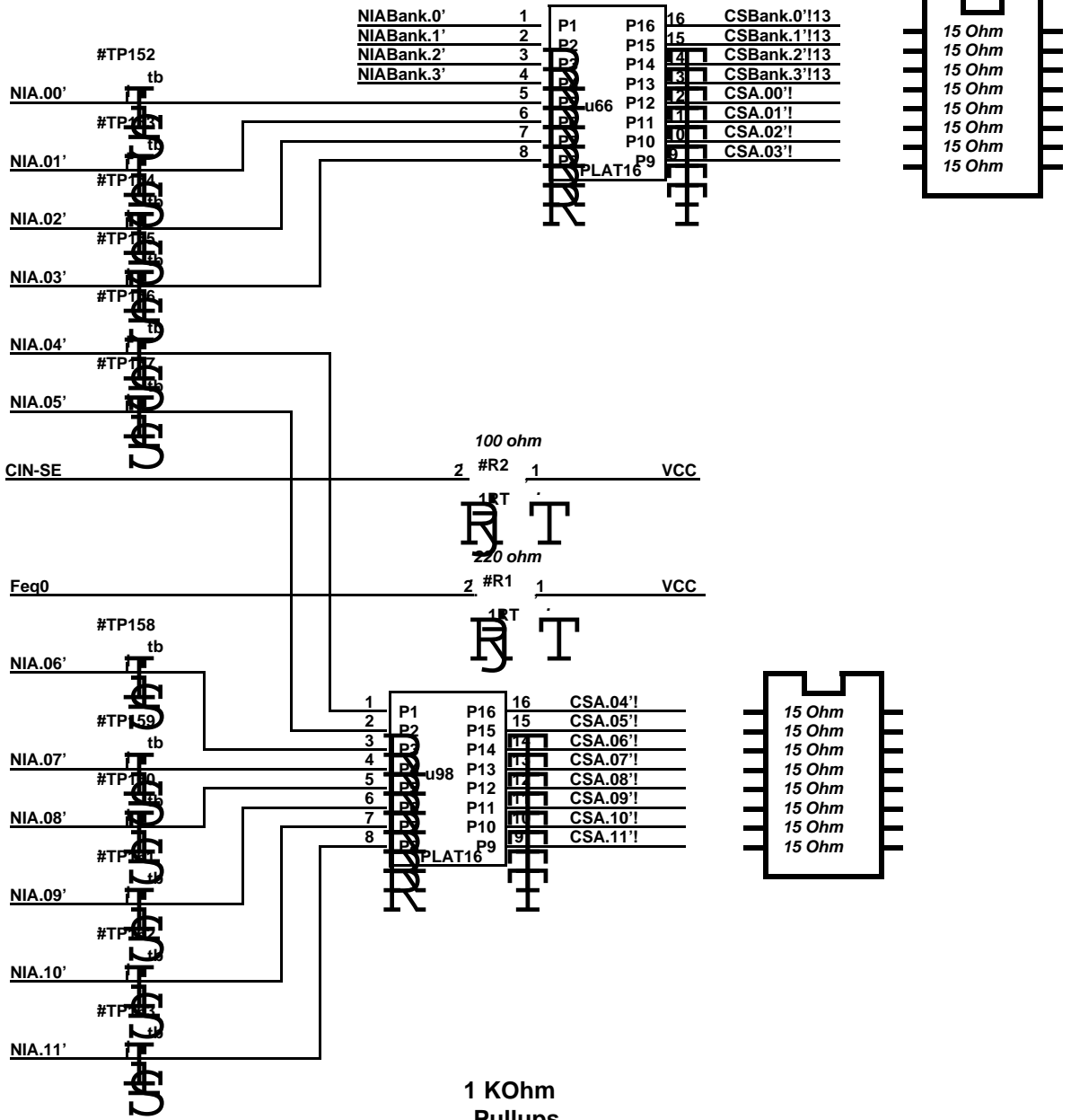
1. TPC registers if switching tasks
2. From the INIA field of the previous microinstruction

In the case of (1), task 6's TPC registers are used by the IOP to provide the address when the IOP wants to read or write data into the control store.

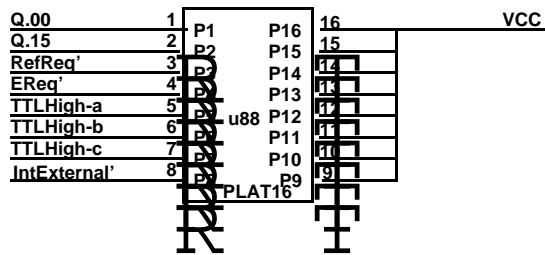
In the case of (2), the INIA field is suitably modified by the trap and conditional branch logic on page 16

Swc2 (122)
AlwaysClk-c

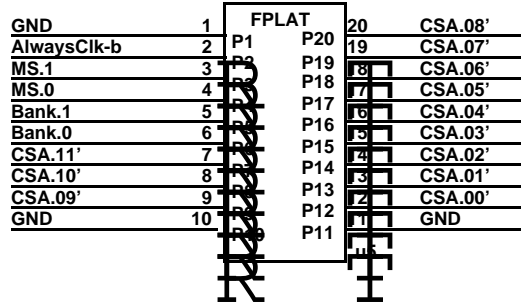
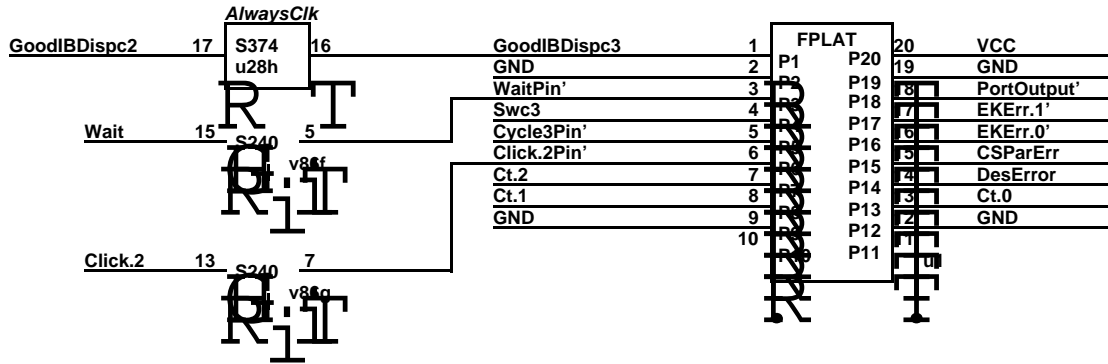
CS NIA Line Matching

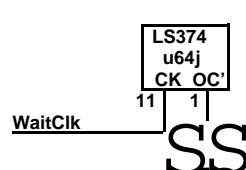
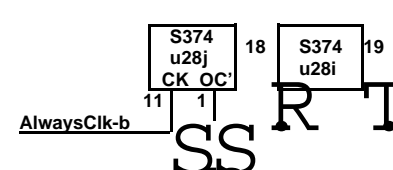
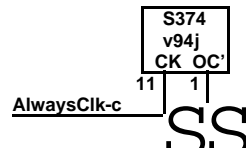
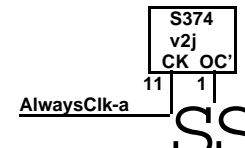
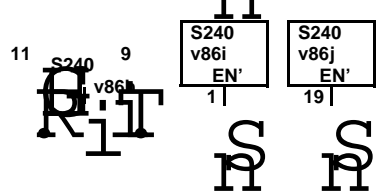
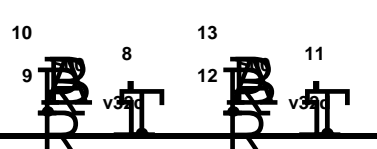
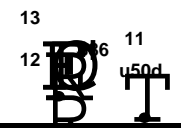


1 KOhm Pullups



Beckman Resnet DIP
 898-1-1K

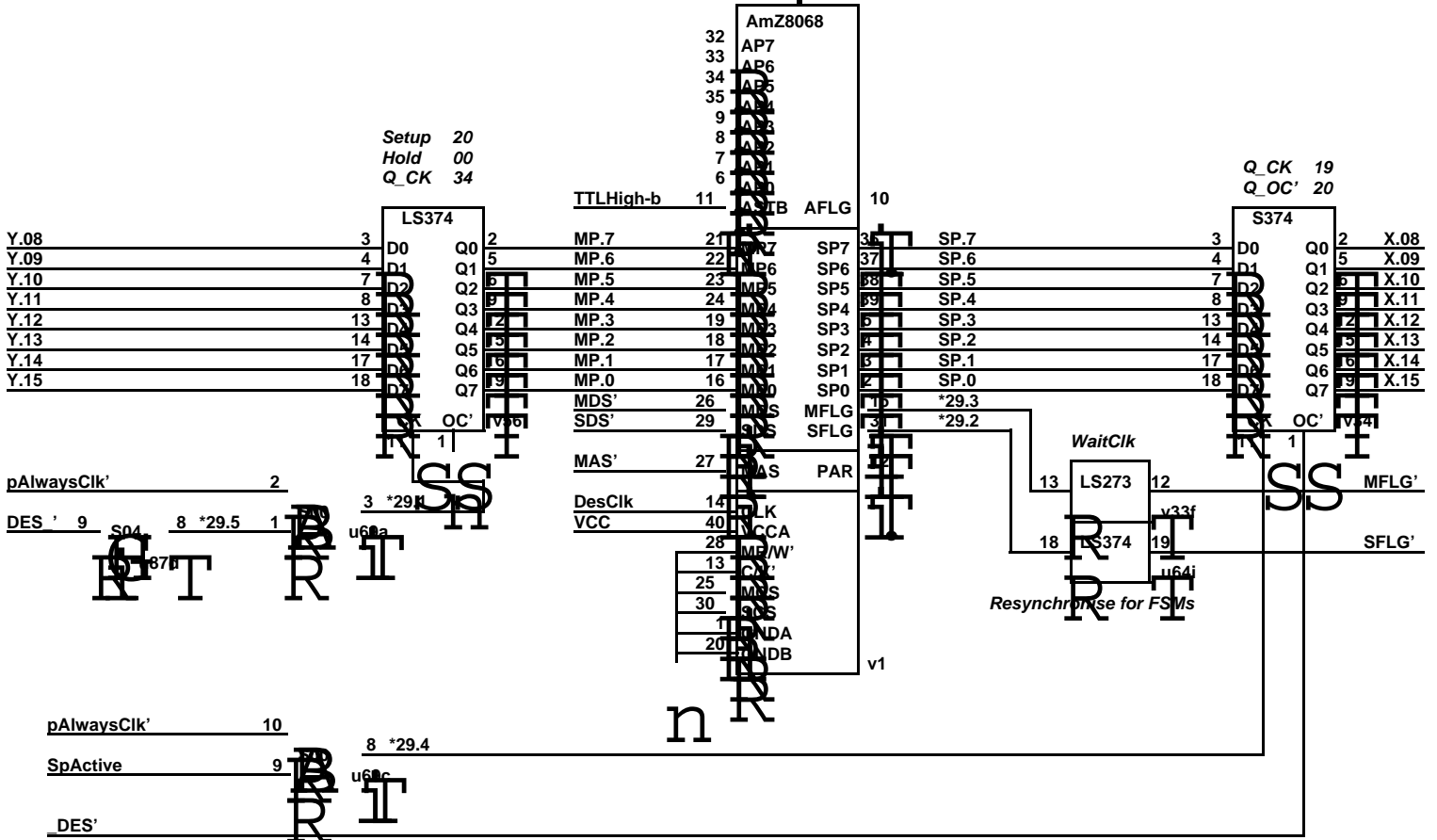


<p>LS374 u89</p> <p>b IBPtr.0 c IBPtr.1 d EmuMemErr e StackErr f pc16' g CSParErr h Mesalnt i SFLG'</p> 	<p>S374 v03</p> <p>b CSPar.0 c CSPar.1 d CSPar.2 e CSPar.3 f CSPar.4 g CSPar.5 h GoodIBDispc3 i</p> 	
<p>S374 v15</p> <p>b MAR_' c AllowMDR_ d TC.0 e TC.1 f TC.2 g TC.3 h KernReq' i TCWaitc1'</p> 	<p>S374 u69</p> <p>b Swc3 c Swc3' d EKTrapc2' e EKTrapc2 f EKErr.0' g EKErr.1' h Waitc2' i Waitc3'</p> 	
<p>S240 w05</p> <p>a Cycle1 b Cycle2 c Cycle3 d Cycle3' e DRef f WaitPin' g Click.2Pin' h</p> 	<p>S04 v43</p> <p>a aD.0' b MAR_ c IBEmptyErr' d Des_YBus e XBus_SU f Port_</p>	
<p>S04 v39</p> <p>a AlwaysClk-a b AlwaysClk-b c AlwaysClk-c d WaitClk e RH_ f Fne0</p>	<p>S10 x01</p> <p>a FPCLK b _FP' c Xhigh_0</p>	<p>S175 u35</p> <p>b MAS' c MDS' d SDS' e IntExternal f *anon*</p>
<p>S00 v42</p> <p>a XBus_SU' b pMAR_' c MarPgCross' d CIN_pc16</p>	<p>S00 v85</p> <p>a Pop b Nibble' c Byte' d DRef'</p>	<p>S00 u36</p> <p>a *anon* b WPort c *anon* d DesClkDisable</p>
<p>S00 v93</p> <p>a WriteSU' b WriteLink' c WriteRH' d WrIBFront</p>	<p>S00 u33</p> <p>a pTC.0 b pTC.1 c WriteTC' d C2Clk</p>	<p>S00 u54</p> <p>a pByte' b SelFP' c d</p> 
<p>S02 v08</p> <p>a pAlwaysCLK' b pWaitCLK' c WriteIB d Nt_Pt</p>	<p>S08 v32</p> <p>a paSh.0 b pAllowMDR_ c pME d *anon*</p>	<p>S51 u90</p> <p>a hlb b WrTPC</p>
<p>S10 v79</p> <p>a sh b Push c XByte'</p>	<p>S10 v23</p> <p>a pTC.2 b pTC.3 c Wait</p>	<p>S20</p> <p>a XBus_IB' b EnLRotn'</p>
<p>LS32 v98</p> <p>a DispBr' b EnDispBr.3A' c EnDispBr2-3B' d EnDispBr0-1'</p>	<p>LS32 v20</p> <p>a Link.0' b Link.1' c Link.2' d Link.3'</p>	<p>LS32 u18</p> <p>a pRet' b *anon* c Mesalnt d M01</p>
<p>S38 v58</p> <p>a Q.00 b Q.15 c CarryIn d CarryIn</p>	<p>S51 u90</p> <p>a Waitc1' b WriteTPC'</p>	<p>S86 v81</p> <p>a PageCross b MapRef c Refresh d</p> 
<p>S260 w04</p> <p>a IBEmptyErr b *anon*</p>	<p>LS139 v49</p> <p>a 8-bit port b bank decode</p>	

DES Hardware Configuration Information

The chip is hard-wired in multiplexed control mode.
 The Master port is wired for writes only.
 The Auxiliary port is not used at all.
 Data always flows from the Master port to the Slave port.
 Des clock is high for c2 and c3, low for c1
 The microcode is synchronous, so MFLG' is ignored.
 Key parity errors, PAR', are ignored!

Zero out the high X bus when reading DES
 _DES' triggers Xhigh_0 page12(CPE11.sil)



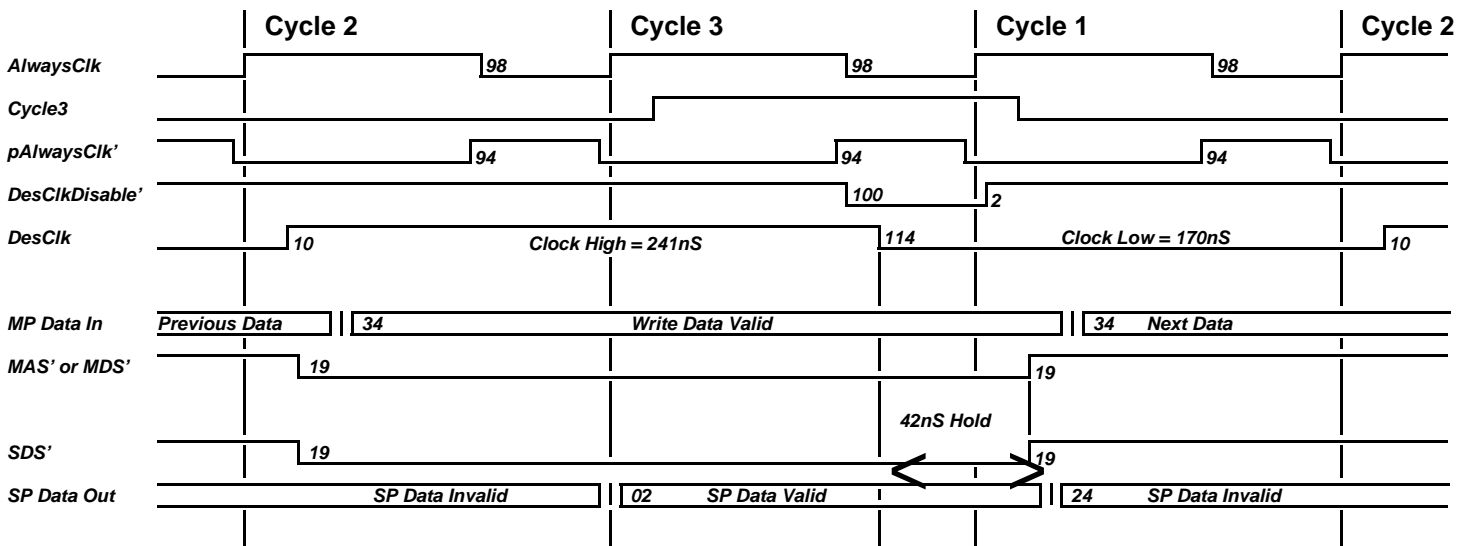
Warning: This drawing contains font 4 macros!

XEROX	PROPRIETARY NOTE ON COVER SHEET APPLIES TO ALL SHEETS	DWG SIZE A4	DWG NO. 156P12560	SHEET REV. A
	TITLE SCHEMATIC, CPE-FP		SHEET 30 OF	

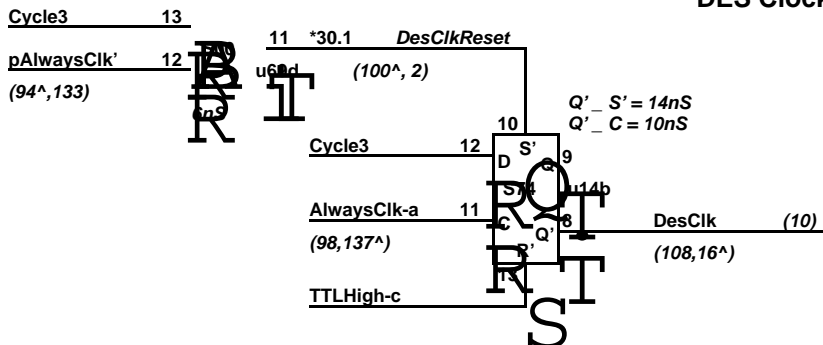
Clock & Reset		AMD #	min.	max.	actual used	Notes
Clock width HIGH		1	115		241	
Clock width LOW		2	115		170	
Clock Cycle		3	250		411	
Clock High to MAS' & MDS' High	Reset Hold	6	0	50	19	
MP and SP Strobe Times						
MAS' falling to MAS' rising (address)	MAS width Low	32	80		274	Can't exceed 1000, so have to watch out for WaitClk
MDS' falling to MDS' rising (data)	MDS width Low	44a	125	1000	274	
MDS' rising to MDS' falling	MDS Recovery	46	125		137	Can't exceed 1000, so have to watch out for WaitClk
SDS' falling to SDS' rising (data read)	SDS width Low	44a	125	1000	274	
SDS' rising to SDS' falling	SDS Recovery	46	125		137	
Clk falling to MDS' rising	MDS Hold	45	20	70	42	This is the difficult bit! See circuitry below. This is the difficult bit! See circuitry below.
Clk falling to SDS' rising	SDS Hold	46	20	70	42	
MAS Write into Master Port						
Data Valid to MAS' rising	Address Setup	36	55		268	
Data Hold after MAS' rising	Address Hold	37	60		243	
MDS Write into Master Port						
Data Valid to MDS' rising	Data Setup	47b	125		268	
Data Hold after MDS' rising	Data Hold	48	80		243	
SDS Read from Slave Port						
SDS falling to Data Valid	SP Access	49b		120		for last byte read
SDS rising to Data Invalid	SP Data Hold	50	5			
SDS falling to SFLG rising	SP Flag	51		125		

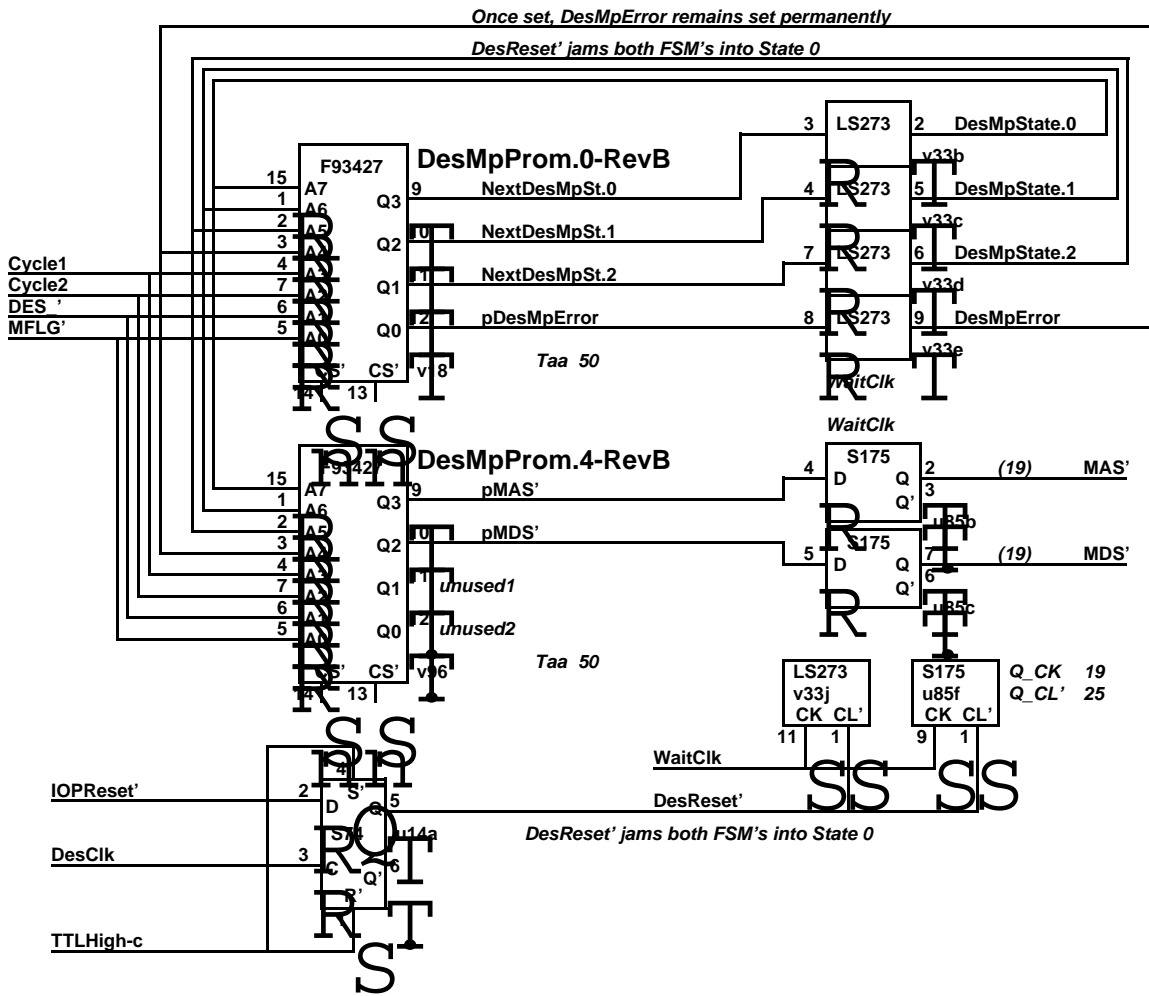
DES Clock Generator Timing

Note: Because of the requirement to hold MDS' and SDS' for 20 to 70 nanoseconds after DesClk falling, we bring DesClk down early in Cycle 3. MAS', MDS' and SDS' follow at the end of Cycle 3.

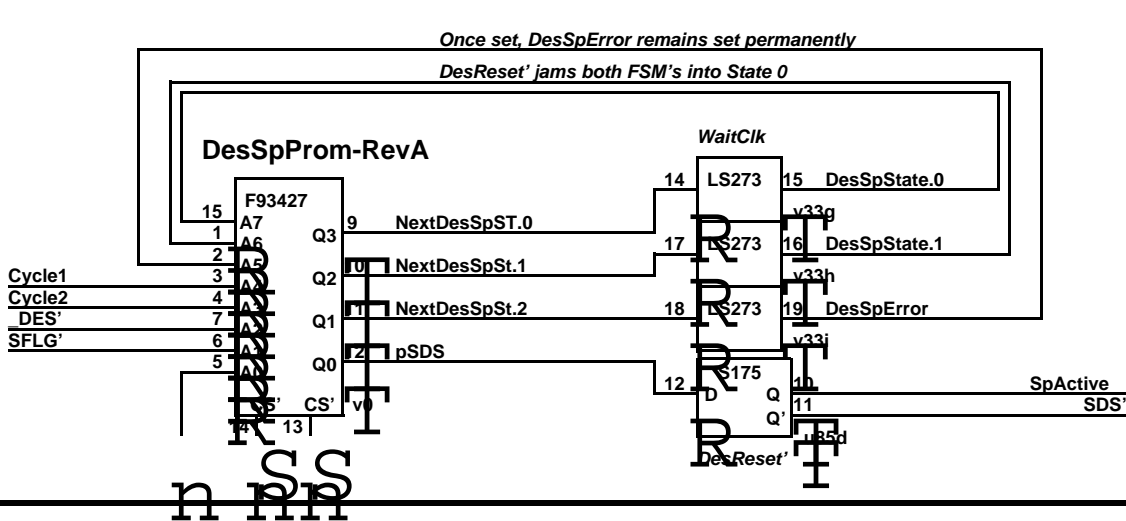


DES Clock Generator



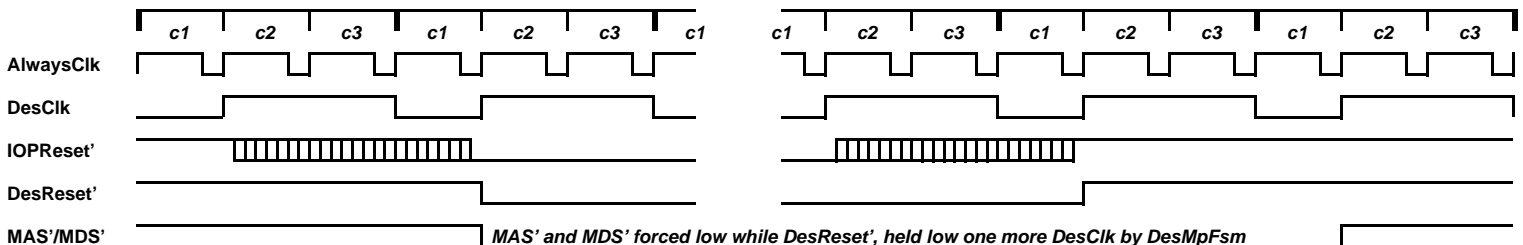


Des Master Port FSM



Des Slave Port FSM

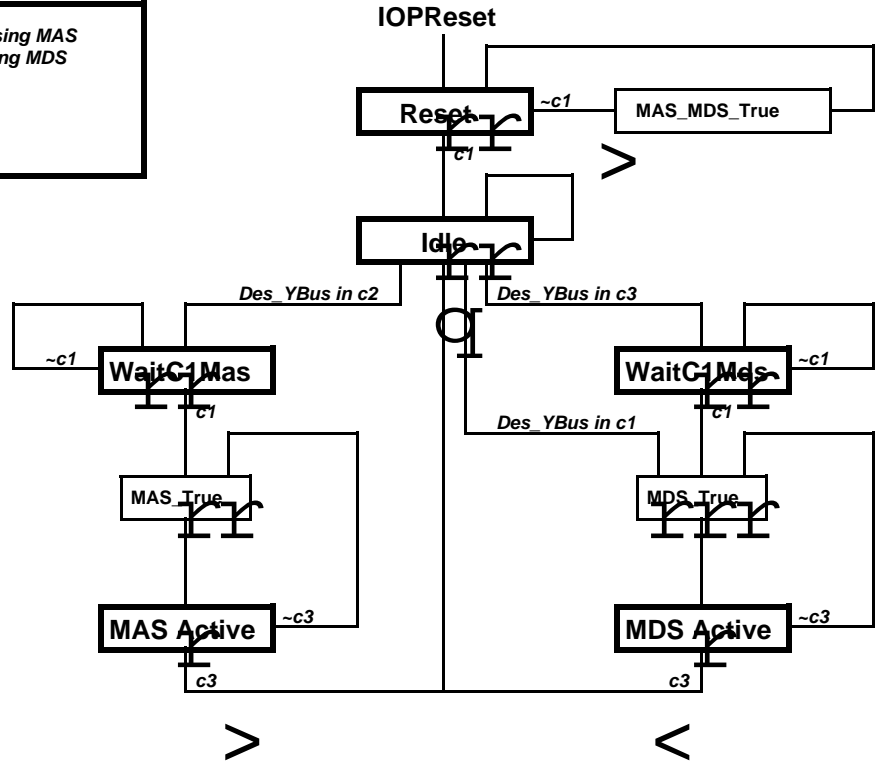
Reset Des Chip and FSM's with IOPReset'



Note on semantics of Master Port Writes

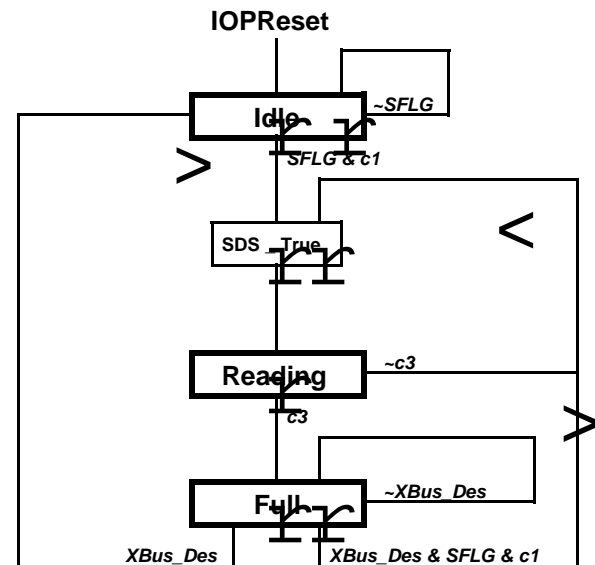
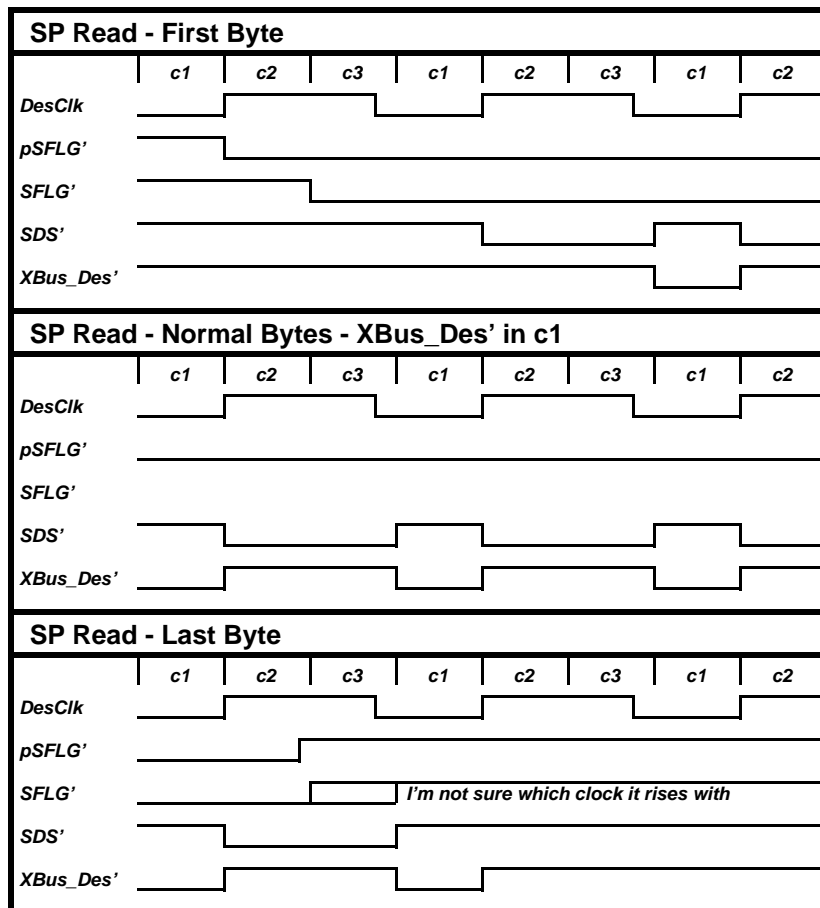
If you write to the Des chip in c2, it means write an address using MAS
 If you write to the Des chip in c1 or c3, it means write data using MDS
 You may have to wait for c1 in some of these cases.

The signals are shown logical-true.
 The implementation below inverts signals as required.



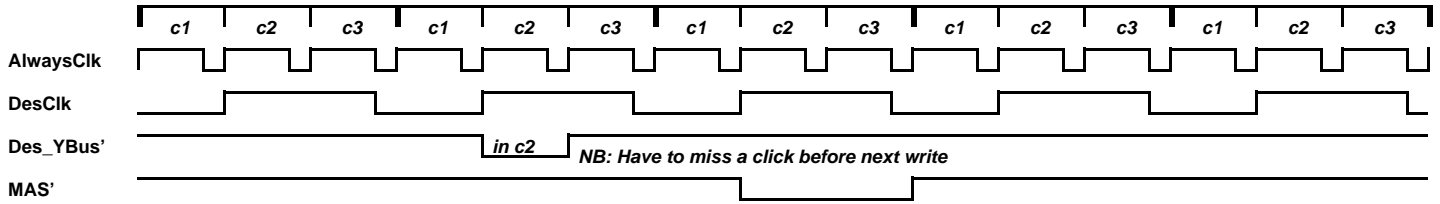
Master Port Finite-State Machine - Error handling of DesMpError signal is not shown

Slave Port Finite-State Machine - Error handling of DesSpError signal is not shown

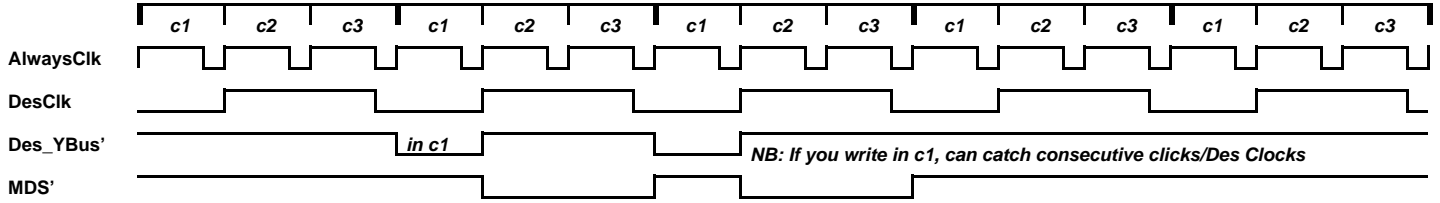


The signals are shown logical-true.
 The implementation below inverts signals as required.

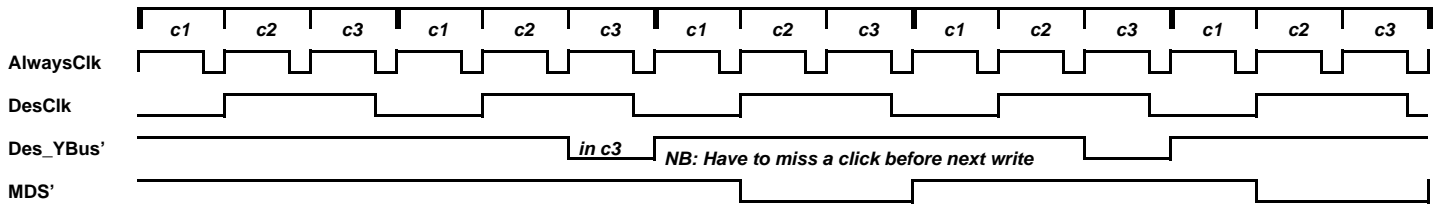
Write address into Des Master Port in C2



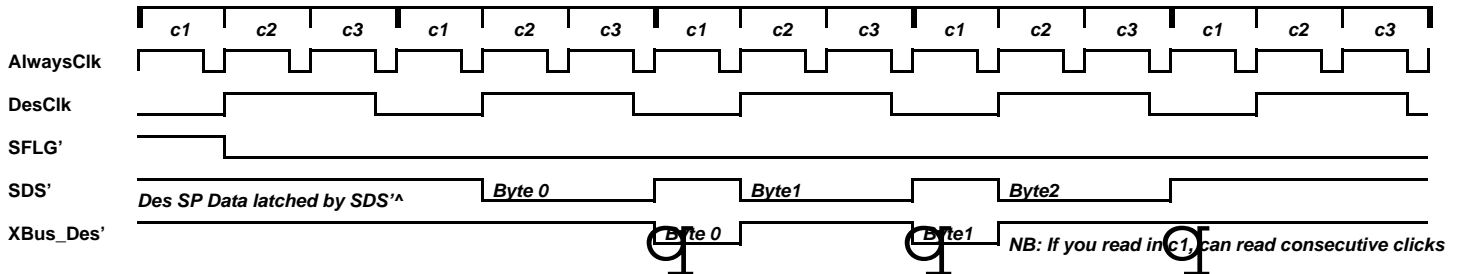
Write data into Des Master Port in C1



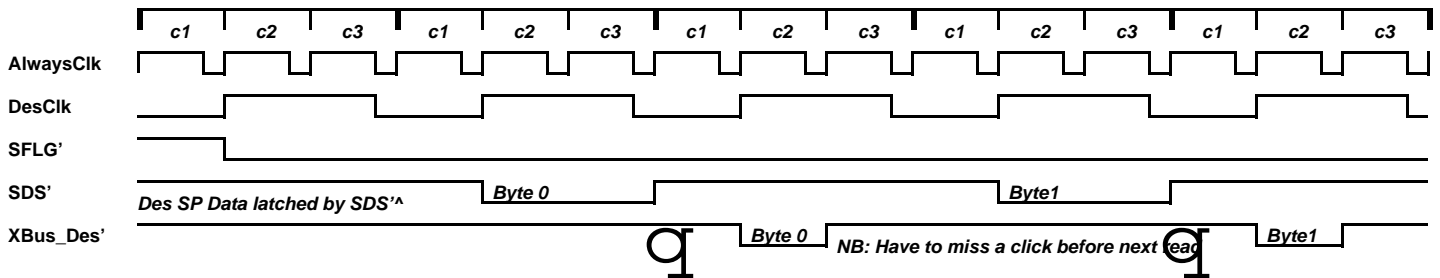
Write data into Des Master Port in C3



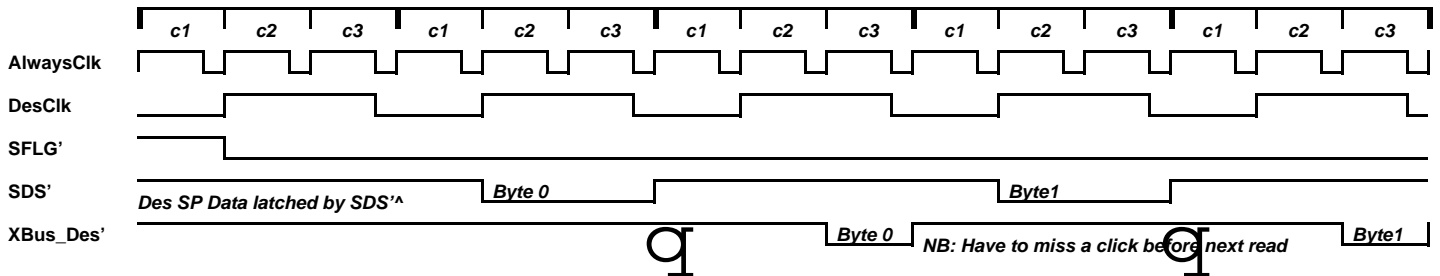
Read Data from Des Slave Port in C1

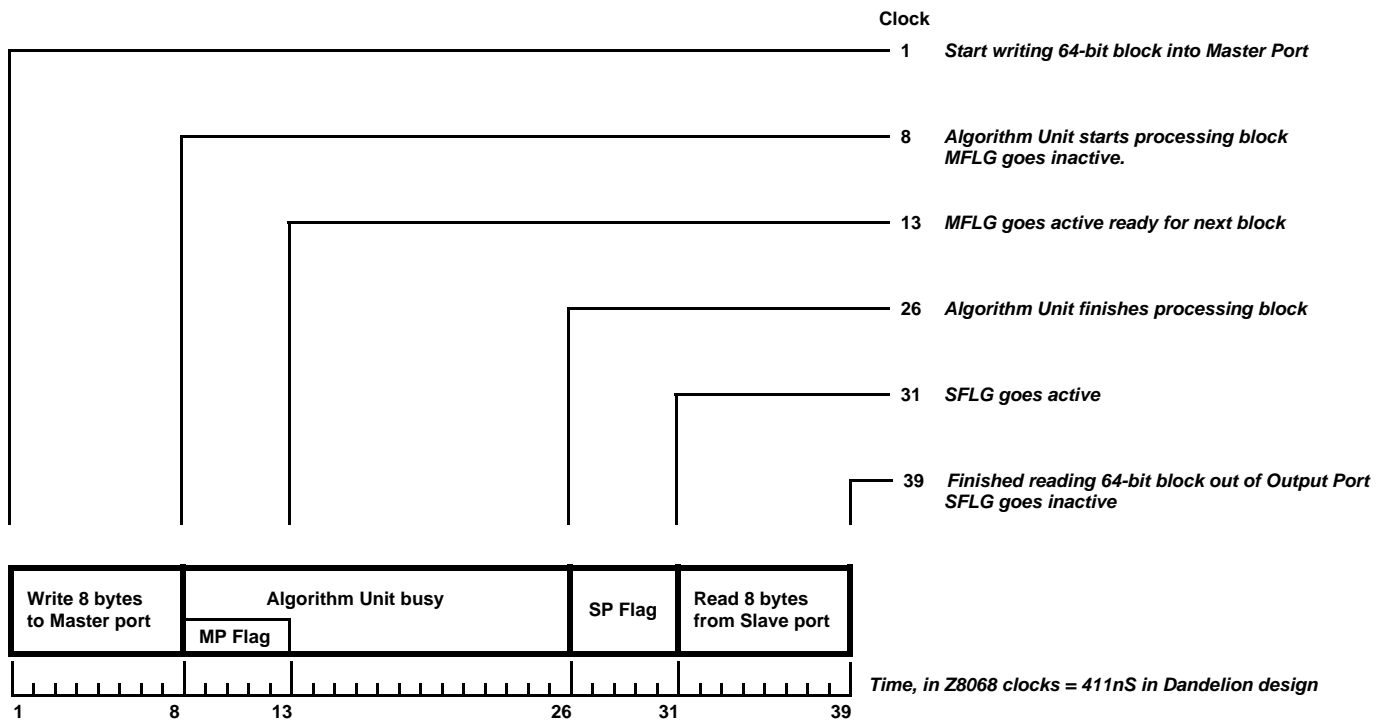


Read Data from Des Slave Port in C2



Read Data from Des Slave Port in C3





WARNING! This data is not guaranteed to be correct!

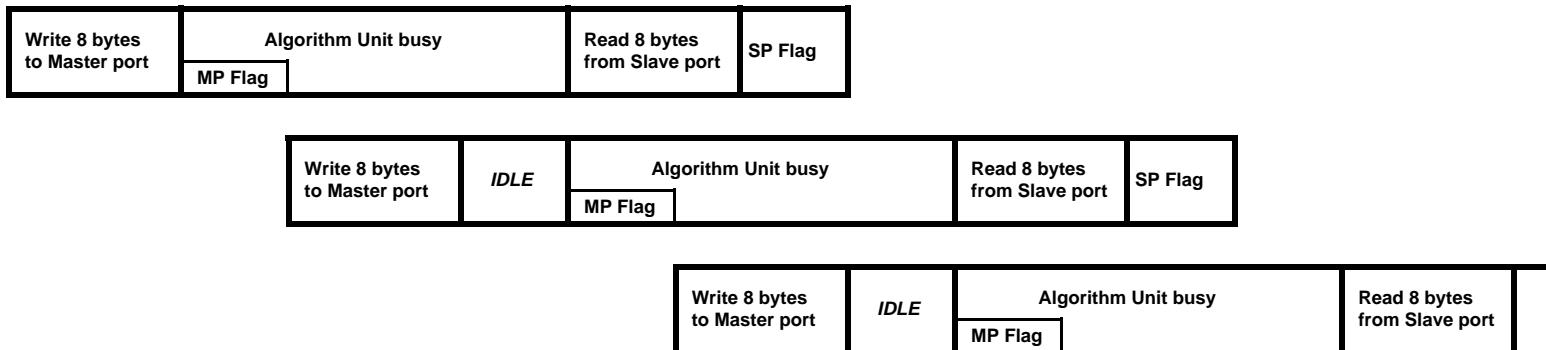
NOTES:

The longest operation in encrypting a block is the time it takes to get the data through the algorithm unit, 18 clocks. Therefore, this is the bottleneck in the pipelining scheme, and the software must aim to keep the Algorithm unit fully busy.

Apart from the first and last blocks, the time taken to encrypt the middle blocks is 18 clocks.

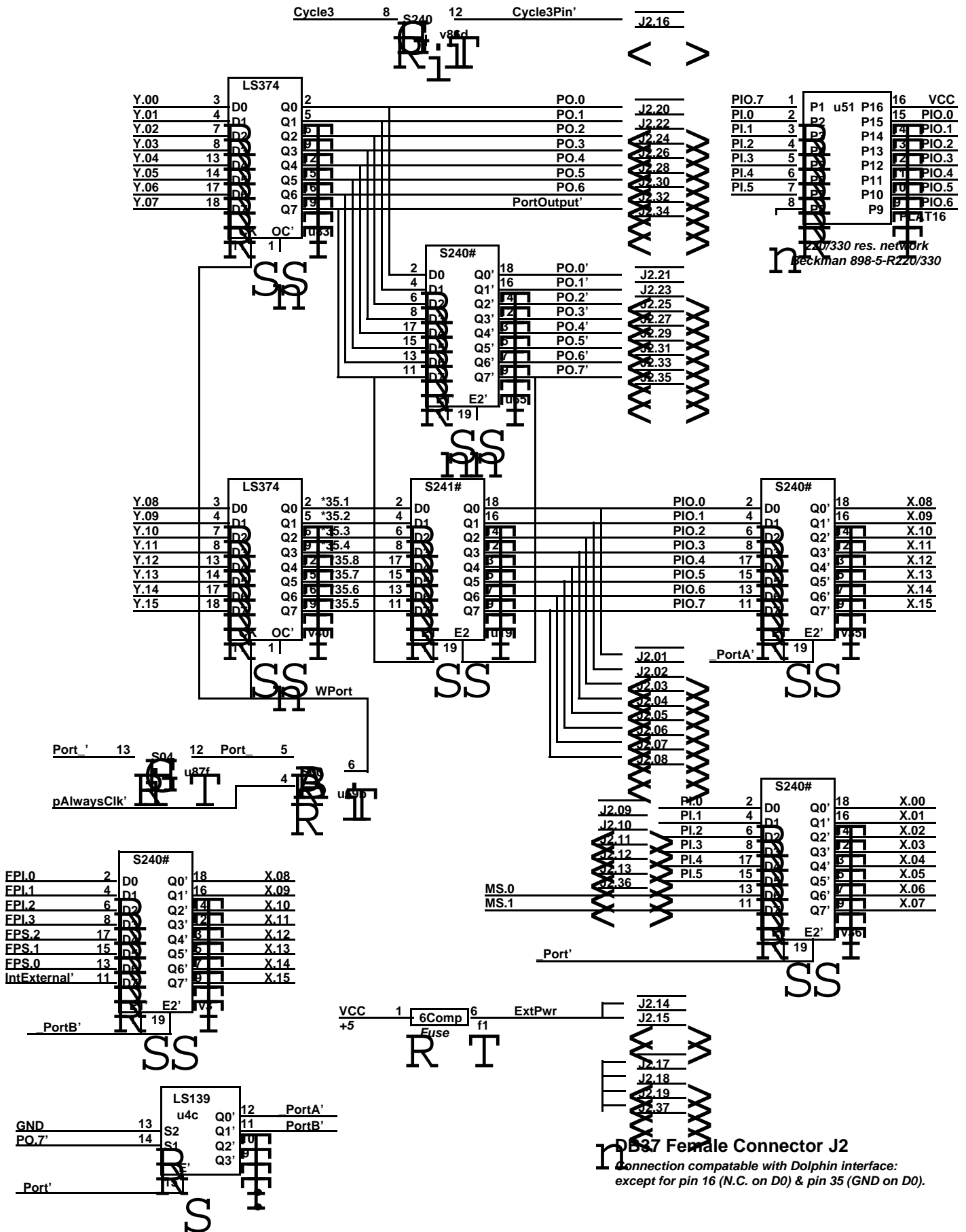
One possible pipelining scheme

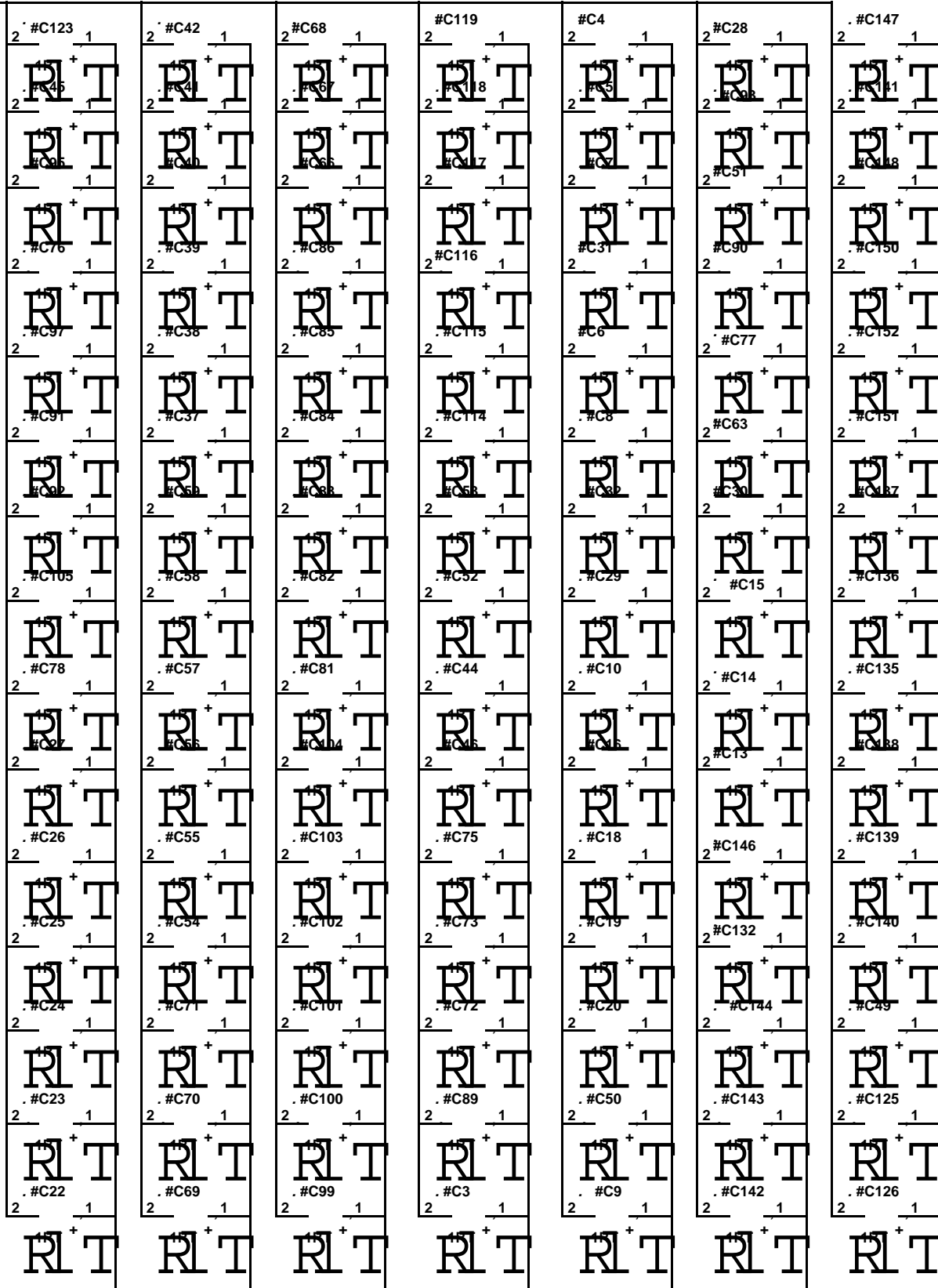
WARNING! This data is not guaranteed to be correct!



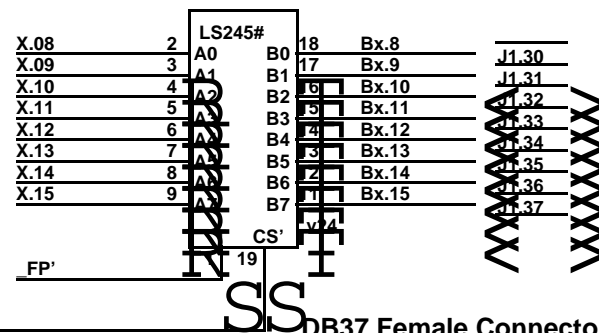
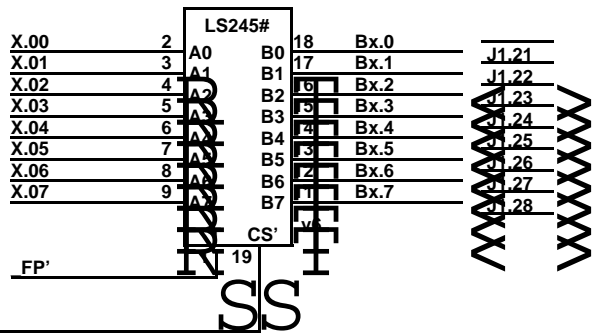
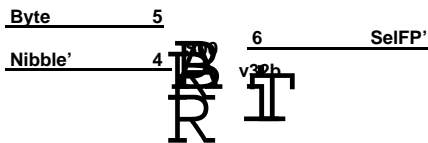
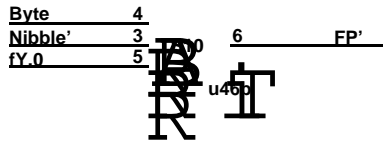
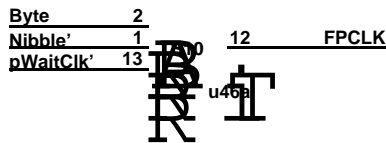
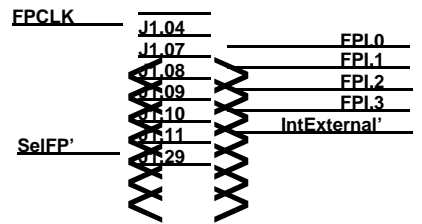
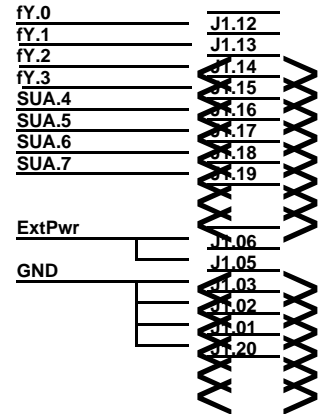
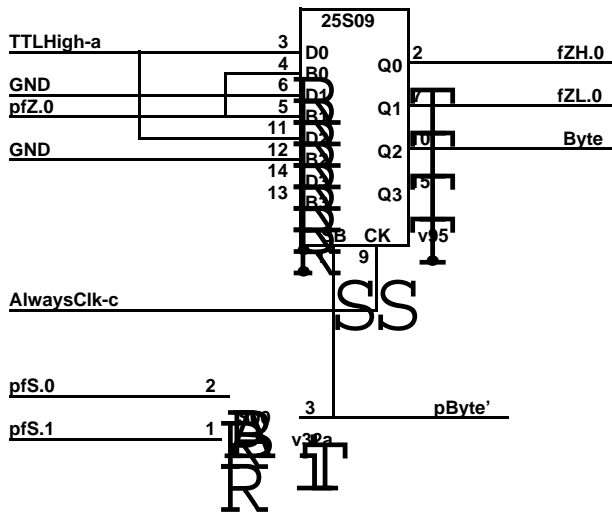
WARNING! This data is not guaranteed to be correct!

XEROX	PROPRIETARY NOTE ON COVER SHEET APPLIES TO ALL SHEETS		DWG SIZE A4	DWG NO. 156P12560	SHEET REV. A
	TITLE SCHEMATIC, CPE-FP <i>Reference</i>			SHEET 35 OF	





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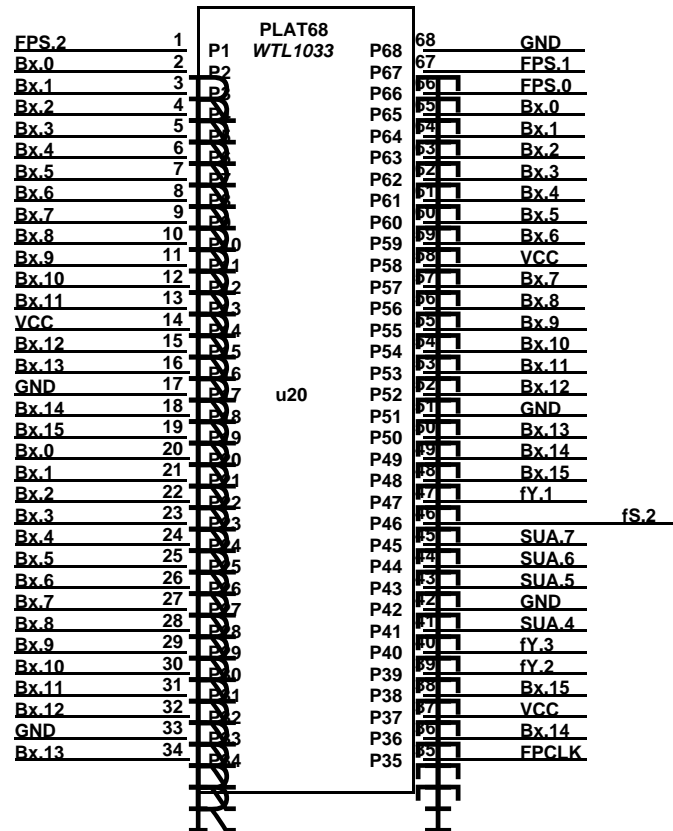
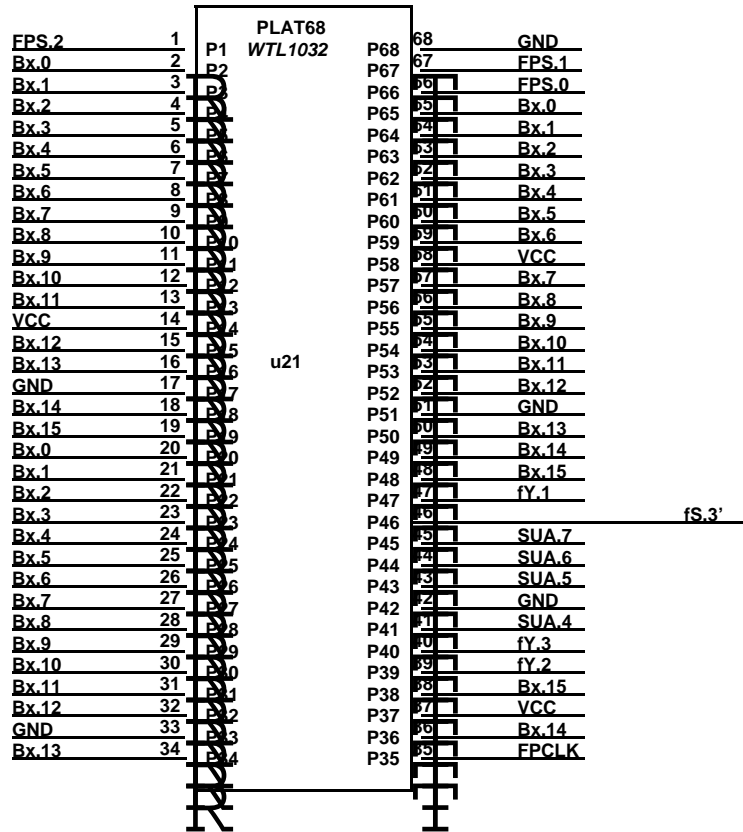


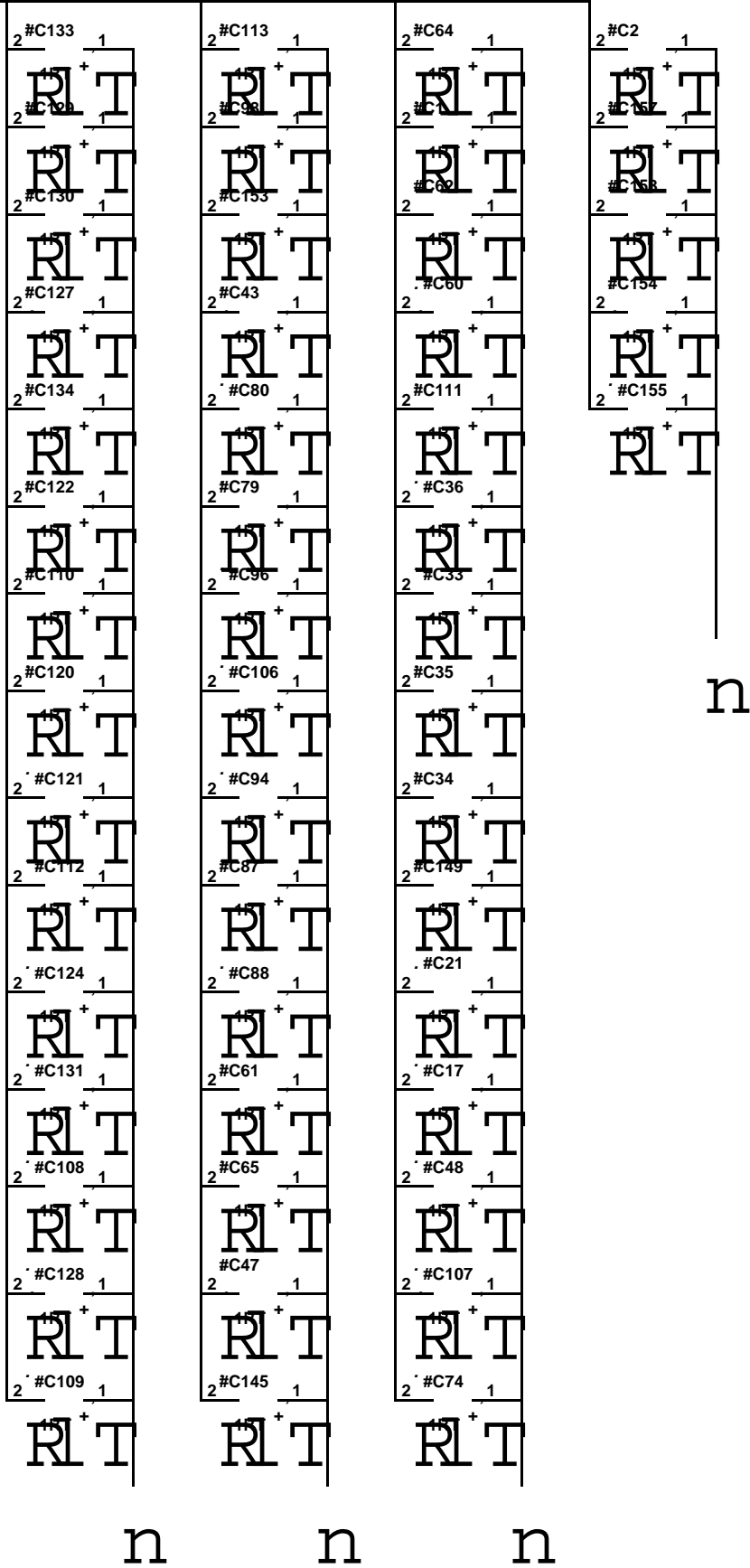
DB37 Female Connector J1
Fast 16-Bit Port

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Old contents merged with next page*

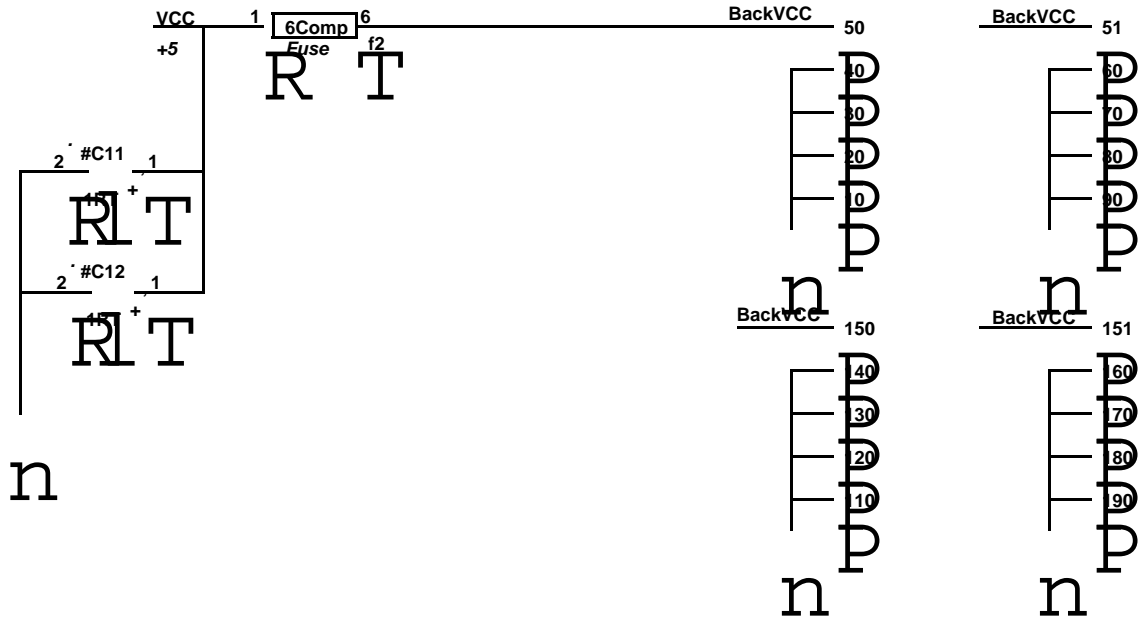
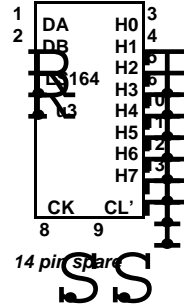
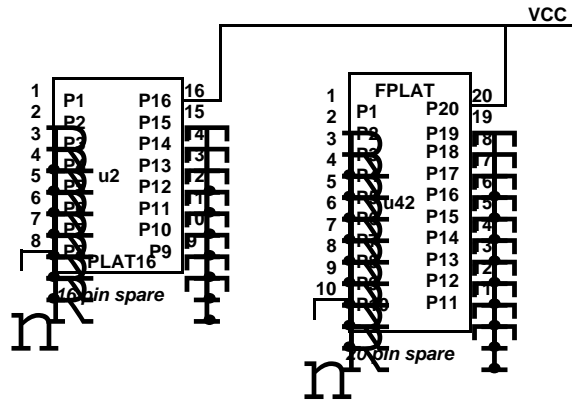
Floating Point Timing Diagram to be done

XEROX	PROPRIETARY NOTE ON COVER SHEET APPLIES TO ALL SHEETS	DWG SIZE A4	DWG NO. 156P12560	SHEET REV. A
	TITLE SCHEMATIC, CPE-FP		SHEET 39 OF	





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Comments:

- 1) Designator notation notes: u1-99 = U1-99, v0-99 = U100-199, w0-99 = U200-299
- 2) The last item on lines below, preceded by a semicolon (;), is the schematic page number on which the test point, connector or signal information originates.
- 3) Line with no page number was a continuation of the previous line.

#TP1	.1i	l2BitCarry	;04	#TP153	.1i	NIA.01'	;27
#TP10	.1i	IB.2	;07	#TP154	.1i	NIA.02'	;27
#TP100	.1i	prB.1	;20	#TP155	.1i	NIA.03'	;27
#TP101	.1i	prB.2	;20	#TP156	.1i	NIA.04'	;27
#TP102	.1i	prB.3	;20	#TP157	.1i	NIA.05'	;27
#TP103	.1i	paS.0	;20	#TP158	.1i	NIA.06'	;27
#TP104	.1i	paS.1	;20	#TP159	.1i	NIA.07'	;27
#TP105	.1i	paS.2	;20	#TP16	.1i	IBFront_	;07
#TP106	.1i	paF.0	;20	#TP160	.1i	NIA.08'	;27
#TP107	.1i	paF.1	;20	#TP161	.1i	NIA.09'	;27
#TP108	.1i	paF.2	;20	#TP162	.1i	NIA.10'	;27
#TP109	.1i	paD.0	;20	#TP163	.1i	NIA.11'	;27
#TP11	.1i	IB.3	;07	#TP17	.1i	GoodIBDispc2	;07
#TP110	.1i	paD.1	;20	#TP172	.1i	IBPtr.0	;07
#TP111	.1i	pEP	;20	#TP173	.1i	IBPtr.1	;07
#TP112	.1i	pCIN-SE-wrSU	;20	#TP174	.1i	ExitKernel'	;11
#TP113	.1i	pEnableSU	;20	#TP175	.1i	EnterKernel'	;11
#TP114	.1i	pmem	;20	#TP176	.1i	ClrIntErr'	;11
#TP115	.1i	pfS.0	;20	#TP177	.1i	IBDisp'	;11
#TP116	.1i	pfS.1	;20	#TP178	.1i	MesaIntRq'	;11
#TP117	.1i	pfS.2	;20	#TP179	.1i	IBPtr_1'	;11
#TP118	.1i	pfS.3	;20	#TP18	.1i	RefillIntc2	;07
#TP119	.1i	pfY.0	;20	#TP180	.1i	IBPtr_0'	;11
#TP12	.1i	IB.4	;07	#TP181	.1i	PopZ'	;11
#TP120	.1i	pfY.1	;20	#TP182	.1i	_ib'	;11
#TP121	.1i	pfY.2	;20	#TP19	.1i	SelectIB0'	;07
#TP122	.1i	pfY.3	;20	#TP192	.1i	pPC16'	;17
#TP123	.1i	INIA.00	;20	#TP199	.1i	EmuMemErr	;17
#TP124	.1i	INIA.01	;20	#TP2	.1i	PageCross	;04
#TP125	.1i	INIA.02	;20	#TP20	.1i	pIBPtr.0	;07
#TP126	.1i	INIA.03	;20	#TP200	.1i	*23.4	;24
#TP127	.1i	pfX.0	;21	#TP201	.1i	*23.5	;24
#TP128	.1i	pfX.1	;21	#TP202	.1i	*23.1	;24
#TP129	.1i	pfX.2	;21	#TP203	.1i	*23.2	;24
#TP13	.1i	IB.5	;07	#TP204	.1i	*23.3	;24
#TP130	.1i	pfX.3	;21	#TP205	.1i	*23.6	;24
#TP131	.1i	INIA.04	;21	#TP21	.1i	pIBPtr.1	;07
#TP132	.1i	INIA.05	;21	#TP22	.1i	SelectIB1'	;07
#TP133	.1i	INIA.06	;21	#TP23	.1i	MAR_'	;10
#TP134	.1i	INIA.07	;21	#TP24	.1i	DispBr.0'	;13
#TP135	.1i	pfZ.0	;21	#TP25	.1i	DispBr.1'	;13
#TP136	.1i	pfZ.1	;21	#TP26	.1i	DispBr.2'	;13
#TP137	.1i	pfZ.2	;21	#TP27	.1i	DispBr.3A'	;13
#TP138	.1i	pfZ.3	;21	#TP28	.1i	DispBr.3B'	;13
#TP139	.1i	INIA.08	;21	#TP29	.1i	pNIA.00'	;14
#TP14	.1i	IB.6	;07	#TP3	.1i	R.00	;04
#TP140	.1i	INIA.09	;21	#TP30	.1i	pNIA.01'	;14
#TP141	.1i	INIA.10	;21	#TP31	.1i	pNIA.02'	;14
#TP142	.1i	INIA.11	;21	#TP32	.1i	pNIA.03'	;14
#TP15	.1i	IB.7	;07	#TP33	.1i	pNIA.04'	;14
#TP152	.1i	NIA.00'	;27	#TP34	.1i	pNIA.05'	;14

#TP35	.li	pNIA.06'	;14	#TP91	.li	pKR'	;17
#TP36	.li	pNIA.07'	;14	#TP93	.li	KernReq'	;17
#TP37	.li	pTC.0	;14	#TP94	.li	pc16'	;17
#TP38	.li	pNIA.08'	;14	#TP95	.li	prA.0	;20
#TP39	.li	pTC.1	;14	#TP96	.li	prA.1	;20
#TP4	.li	R.15	;04	#TP97	.li	prA.2	;20
#TP40	.li	pNIA.09'	;14	#TP98	.li	prA.3	;20
#TP41	.li	pTC.2	;14	#TP99	.li	prB.0	;20
#TP42	.li	pNIA.10'	;14				
#TP43	.li	pTC.3	;14	E002		Cycle1'	;18
#TP44	.li	pNIA.11'	;14	E003		Cycle2'	;18
#TP45	.li	TPC.00'	;15	E004		Cycle3'	;18
#TP46	.li	TPC.01'	;15	E009		ppClk	;18
#TP47	.li	TPC.02'	;15	E010		GND	;42
#TP48	.li	TPC.03'	;15	E011		AllowMDR_	;10
#TP49	.li	TPC.04'	;15	E015		MapRef	;12
#TP5	.li	Q.00	;04	E016		Refresh	;12
#TP50	.li	TPC.05'	;15	E017		Wait	;18
#TP51	.li	TPC.06'	;15	E020		GND	;42
#TP52	.li	TPC.07'	;15	E021		IOPOData_'	;11
#TP53	.li	TPC.08'	;15	E022		KOData_'	;11
#TP54	.li	TPC.09'	;15	E023		EOData_'	;11
#TP55	.li	TPC.10'	;15	E024		DctlFifo_'	;11
#TP56	.li	TPC.11'	;15	E025		DBorder_'	;11
#TP57	.li	pLink.0'	;15	E026		_TStatus'	;11
#TP58	.li	pLink.1'	;15	E027		KCmd_'	;11
#TP59	.li	pLink.2'	;15	E028		POData_'	;11
#TP6	.li	Q.15	;04	E030		GND	;42
#TP60	.li	pLink.3'	;15	E031		_EIData'	;11
#TP61	.li	TCY.0	;15	E032		_KIData'	;11
#TP62	.li	TCY.1	;15	E033		_KTest'	;11
#TP63	.li	TCY.2	;15	E034		_IOPIData'	;11
#TP64	.li	TCY.3	;15	E035		EStrobe'	;11
#TP65	.li	Ct.0	;16	E037		CSParErr	;24
#TP66	.li	Ct.1	;16	E039		YIODisp.0	;13
#TP67	.li	Ct.2	;16	E040		GND	;42
#TP68	.li	Ct=Emu	;16	E041		X.00	;03
#TP69	.li	Pt=Emu	;16	E042		X.02	;03
#TP7	.li	CIN-SE	;04	E043		X.04	;03
#TP70	.li	Nt.0	;16	E044		X.06	;03
#TP71	.li	Nt.1	;16	E045		X.08	;03
#TP72	.li	Nt.2	;16	E046		X.10	;03
#TP73	.li	Nt=Emu	;16	E047		X.12	;03
#TP74	.li	Swc2	;16	E048		X.14	;03
#TP75	.li	Swc2'	;16	E049		Y.00	;03
#TP76	.li	*23.7	;24	E050		BackVCC	;42
#TP77	.li	*23.8	;24	E051		BackVCC	;42
#TP78	.li	MesaInt	;24	E052		Y.02	;03
#TP79	.li	EKTrapc2'	;17	E053		Y.04	;03
#TP8	.li	IB.0	;07	E054		Y.06	;03
#TP80	.li	EKTrapc2	;17	E055		Y.08	;03
#TP81	.li	EKErr.0'	;17	E056		Y.10	;03
#TP82	.li	EKErr.1'	;17	E057		Y.12	;03
#TP83	.li	pEKT	;17	E058		Y.14	;03
#TP84	.li	pEKT	;17	E059		YH.0	;06
#TP85	.li	pEK0'	;17	E060		GND	;42
#TP86	.li	pEK1'	;17	E061		YH.2	;06
#TP87	.li	pSE	;17	E062		YH.4	;06
#TP9	.li	IB.1	;07	E063		YH.6	;06

XEROX	PROPRIETARY NOTE ON COVER SHEET APPLIES TO ALL SHEETS		DWG SIZE A4	DWG NO. 156P12560		SHEET REV. A
	TITLE	SCHEMATIC, CPE-FP		SHEET	43 OF	

E064	Pt.0	;16	E155	Y.09	;03
E065	Pt.2	;16	E156	Y.11	;03
E066	Disp-Proc'	;18	E157	Y.13	;03
E070	GND	;42	E158	Y.15	;03
E077	IOPAddr.14	;19	E159	YH.1	;06
E080	GND	;42	E160	GND	;42
E081	pCSWE.a'	;19	E161	YH.3	;06
E082	pCSWE.c'	;19	E162	YH.5	;06
E083	pCSWE.e'	;19	E163	YH.7	;06
E084	IOPReq'	;16	E164	Pt.1	;16
E085	DPRReq'	;16	E166	MemErrc3	;17
E086	EReq'	;16	E170	GND	;42
E087	KReq'	;16	E176	IOPAddr.13	;19
E088	RefReq'	;16	E177	IOPAddr.15	;19
E089	EORound	;16	E180	GND	;42
E090	GND	;42	E181	pCSWE.b'	;19
E091	WrTPCHigh'	;19	E182	pCSWE.d'	;19
E092	IOPData.0	;19	E183	pCSWE.f'	;19
E093	IOPData.2	;19	E185	ClrDPRReq'	;11
E094	IOPData.4	;19	E186	ClrRefReg'	;11
E095	IOPData.6	;19	E187	ClrKFlags'	;11
E096	SwTAddr	;19	E188	ReadCSEn'	;25
E102	Click.0	;16	E189	IOPWait	;18
E103	Click.1	;16	E190	GND	;42
E104	Click.2	;16	E191	WrTPCLow	;18
E110	GND	;42	E192	IOPData.1	;19
E113	mem	;10	E193	IOPData.3	;19
E114	_MStatus'	;11	E194	IOPData.5	;19
E115	Mctl_'	;11	E195	IOPData.7	;19
E117	IOPReset'	;26	E196	SwTAddr'	;19
E120	GND	;42			
E121	IOPctl_'	;11	J1	.01 GND	;38
E122	Kctl_'	;11	J1	.02 GND	;38
E123	EIctl_'	;11	J1	.03 GND	;38
E124	Dctl_'	;11	J1	.04 FPCLK	;38
E126	EOctl_'	;11	J1	.05 ExtPwr	;38
E127	_TIData'	;11	J1	.06 ExtPwr	;38
E128	Pctl_'	;11	J1	.07 FPI.0	;38
E130	GND	;42	J1	.08 FPI.1	;38
E131	_EIStatus'	;11	J1	.09 FPI.2	;38
E132	_KStatus'	;11	J1	.10 FPI.3	;38
E133	KStrobe'	;11	J1	.11 IntExternal'	;38
E134	_IOPStatus'	;11	J1	.12 fY.0	;38
E139	YIODisp.1	;13	J1	.13 fY.1	;38
E140	GND	;42	J1	.14 fY.2	;38
E141	X.01	;03	J1	.15 fY.3	;38
E142	X.03	;03	J1	.16 SUA.4	;38
E143	X.05	;03	J1	.17 SUA.5	;38
E144	X.07	;03	J1	.18 SUA.6	;38
E145	X.09	;03	J1	.19 SUA.7	;38
E146	X.11	;03	J1	.20 GND	;38
E147	X.13	;03	J1	.21 Bx.0	;38
E148	X.15	;03	J1	.22 Bx.1	;38
E149	Y.01	;03	J1	.23 Bx.2	;38
E150	BackVCC	;42	J1	.24 Bx.3	;38
E151	BackVCC	;42	J1	.25 Bx.4	;38
E152	Y.03	;03	J1	.26 Bx.5	;38
E153	Y.05	;03	J1	.27 Bx.6	;38
E154	Y.07	;03	J1	.28 Bx.7	;38

XEROX	PROPRIETARY NOTE ON COVER SHEET APPLIES TO ALL SHEETS		DWG SIZE A4	DWG NO. 156P12560		SHEET REV. A
	TITLE	SCHEMATIC, CPE-FP		SHEET	44	

J1	.29	SelFP'	;38	*04.15:	v68.12o, v83.13i	;05
J1	.30	Bx.8	;38			
J1	.31	Bx.9	;38	*04.16:	v68.10o, v83.11i	;05
J1	.32	Bx.10	;38			
J1	.33	Bx.11	;38	*04.17:	v41.10o, v83.8i	;05
J1	.34	Bx.12	;38			
J1	.35	Bx.13	;38	*04.18:	v41.12o, v83.6i	;05
J1	.36	Bx.14	;38			
J1	.37	Bx.15	;38	*04.19:	v41.14o, v83.4i	;05
J2	.01	PIO.0	;36	*04.1:	v58.4o, u89.4i	;05
J2	.02	PIO.1	;36			
J2	.03	PIO.2	;36	*04.20:	v41.16o, v83.2i	;05
J2	.04	PIO.3	;36			
J2	.05	PIO.4	;36	*04.2:	v58.7o, u89.5i	;05
J2	.06	PIO.5	;36			
J2	.07	PIO.6	;36	*04.3:	v58.9o, u89.12i	;05
J2	.08	PIO.7	;36			
J2	.09	PI.0	;36	*04.4:	v58.12o, u89.13i	;05
J2	.10	PI.1	;36			
J2	.11	PI.2	;36	*04.5:	v42.16o, v84.2i	;05
J2	.12	PI.3	;36			
J2	.13	PI.4	;36	*04.6:	v42.14o, v84.4i	;05
J2	.14	ExtPwr	;36			
J2	.15	ExtPwr	;36	*04.7:	v42.12o, v84.6i	;05
J2	.16	Cycle3Pin'	;36			
J2	.17	GND	;36	*04.8:	v42.10o, v84.8i	;05
J2	.18	GND	;36			
J2	.19	GND	;36	*04.9:	v69.10o, v84.11i	;05
J2	.20	PO.0	;36			
J2	.21	PO.0'	;36	*06.1:	v78.2o, v65.3i, v37.2o	;07
J2	.22	PO.1	;36			
J2	.23	PO.1'	;36	*06.2:	v78.5o, v65.4i, v37.5o	;07
J2	.24	PO.2	;36			
J2	.25	PO.2'	;36	*06.3:	v78.6o, v65.7i, v37.6o	;07
J2	.26	PO.3	;36			
J2	.27	PO.3'	;36	*06.4:	v78.9o, v65.8i, v37.9o	;07
J2	.28	PO.4	;36			
J2	.29	PO.4'	;36	*06.5:	v78.12o, v65.13i, v37.12o	;07
J2	.30	PO.5	;36			
J2	.31	PO.5'	;36	*06.6:	v78.15o, v65.14i, v37.15o	;07
J2	.32	PO.6	;36			
J2	.33	PO.6'	;36	*06.7:	v78.16o, v65.17i, v37.16o	;07
J2	.34	PortOutput'	;36			
J2	.35	PO.7'	;36	*06.8:	v78.19o, v65.18i, v37.19o	;07
J2	.36	PI.5	;36			
J2	.37	GND	;36	*15.1:	v97.13o, v85.19i	;16
				*17.1:	u35.11o, v22.5i	;18
*04.10: v69.12o, v84.13i ;05				*17.2:	u31.11o, v05.9i	;18
*04.11: v69.14o, v84.15i ;05				*17.3:	u35.6o, v97.9i	;18
*04.12: v69.16o, v84.17i ;05				*23.10:	u22.5o, u28.3i	;24
*04.13: v68.16o, v83.17i ;05				*23.11:	u23.5o, u28.4i	;24
*04.14: v68.14o, v83.15i ;05				*23.12:	u27.5o, u28.14i	;24

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	TITLE SCHEMATIC, CPE-FP		A4	SHEET 45 OF	A

*23.13: u24.5o, u28.7i ;24	*35.7: v40.15o, u19.15i ;36
*23.14: u25.5o, u28.8i ;24	*35.8: v40.12o, u19.17i ;36
*23.15: u26.5o, u28.13i ;24	12BitCarry: u81.29i ;03
*23.16: u85.14o, u35.9i ;24	12BitCarry: u90.9o, #TP1.1i ;04
*23.1: #TP202.1i, u28.6o, u29.1i ;24	12BitGen': u80.32o ;03
*23.2: #TP203.1i, u28.9o, u29.2i ;24	12BitGen': u90.14i ;04
*23.3: #TP204.1i, u28.12o, u29.3i ;24	12BitProp': u80.35o ;03
*23.4: #TP200.1i, u28.2o, u29.16i ;24	12BitProp': u90.15i ;04
*23.5: #TP201.1i, u28.5o, u29.17i ;24	18.1: v51.2i, v52.2i, v53.2i ;19
*23.6: #TP205.1i, u28.15o, u29.4i ;24	18.1: v54.2i, v55.2i, v72.3i
*23.7: #TP76.1i, u29.11o, u64.14i ;24	18.1: v70.18o, v50.2i
*23.8: #TP77.1i, u35.8o, u64.17i ;24	18.2: v51.4i, v52.4i, v53.4i ;19
*23.9: u29.13o, u35.10i ;24	18.2: v54.4i, v55.4i, v72.4i
*25.1: u04.5o, u13.6i ;26	18.2: v73.2i, v70.16o, v50.4i
*25.2: u04.6o, u13.11i ;26	18.3: v51.6i, v52.6i, v53.6i ;19
*25.3: u04.7o, u13.14i ;26	18.3: v54.6i, v55.6i, v72.7i
*25.4: u04.4o, u13.3i ;26	18.3: v73.4i, v70.14o, v50.6i
*29.1: u69.3o, v56.11i ;30	18.4: v51.8i, v52.8i, v53.8i ;19
*29.2: v01.31o, u64.18i ;30	18.4: v54.8i, v55.8i, v72.8i
*29.3: v01.15o, v33.13i ;30	18.4: v73.6i, v70.12o, v50.8i
*29.4: u69.8o, v34.11i ;30	18.5: v51.17i, v52.17i, v53.17i ;19
*29.5: u87.8o, u69.1i ;30	18.5: v54.17i, v55.17i, v72.13i
*30.1: u69.11o, u14.10i ;31	18.5: v73.8i, v70.3o, v50.17i
*35.1: v40.2o, u19.2i ;36	18.6: v51.15i, v52.15i, v53.15i ;19
*35.2: v40.5o, u19.4i ;36	18.6: v54.15i, v55.15i, v72.14i
*35.3: v40.6o, u19.6i ;36	18.6: v73.17i, v70.5o, v50.15i
*35.4: v40.9o, u19.8i ;36	18.7: v51.13i, v52.13i, v53.13i ;19
*35.5: v40.19o, u19.11i ;36	18.7: v54.13i, v55.13i, v72.17i
*35.6: v40.16o, u19.13i ;36	18.7: v73.15i, v70.7o, v50.13i
	18.8: v51.11i, v52.11i, v53.11i ;19
	18.8: v54.11i, v55.11i, v72.18i
	18.8: v73.13i, v70.9o, v50.11i
	4BitCarry: v08.29i ;03
	4BitCarry: u90.12o ;04
	4BitCarry: v07.12i ;13
	4BitGen': v09.32o ;03
	4BitGen': u90.3i ;04
	4BitProp': v09.35o ;03
	4BitProp': u90.4i ;04
	8BitCarry: u80.29i ;03
	8BitCarry: u50.2i, u90.11o ;04
	8BitCarry: v07.15i ;13

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8BitGen': v08.32o ;03	AlwaysClk-b: u67.11i ;10
8BitGen': u90.1i ;04	AlwaysClk-b: v21.4o ;18
	AlwaysClk-b: u13.9i ;26
8BitProp': v08.35o ;03	AlwaysClk-b: u47.9i ;26
8BitProp': u90.2i ;04	AlwaysClk-b: u05.2i ;28
	AlwaysClk-b: u28.11i ;29
aD.0': u63.15i, u87.2o, u62.1i ;04	
	AlwaysClk-c: v16.11i ;10
aD.0: u81.7i ;03	AlwaysClk-c: v17.11i ;10
aD.0: u80.7i ;03	AlwaysClk-c: v76.11i ;15
aD.0: v09.7i ;03	AlwaysClk-c: v62.11i ;15
aD.0: v08.7i ;03	AlwaysClk-c: v21.6o ;18
aD.0: u87.1i, u62.5i, u63.1i ;04	AlwaysClk-c: u82.9i, v31.9i ;26
aD.0: v16.12o ;10	AlwaysClk-c: v94.11i ;29
	AlwaysClk-c: v95.9i ;38
aD.1: u81.5i ;03	
aD.1: u80.5i ;03	aSh.0: u81.14i ;03
aD.1: v09.5i ;03	aSh.0: u80.14i ;03
aD.1: v08.5i ;03	aSh.0: v17.19o ;10
aD.1: u63.2i ;04	
aD.1: v16.15o ;10	aSh.1: u81.13i ;03
	aSh.1: u80.13i ;03
aF.0: u81.27i ;03	aSh.1: u99.2o ;10
aF.0: u80.27i ;03	
aF.0: v09.27i ;03	aSh.2: u81.12i ;03
aF.0: v08.27i ;03	aSh.2: u80.12i ;03
aF.0: u67.2o ;10	aSh.2: u99.7o ;10
aFh.1: u81.28i ;03	aSl.0: v08.14i ;03
aFh.1: u80.28i ;03	aSl.0: v09.14i ;03
aFh.1: u99.10o ;10	aSl.0: v17.12o ;10
aFh.2: u81.26i ;03	aSl.1: v08.13i ;03
aFh.2: u80.26i ;03	aSl.1: v09.13i ;03
aFh.2: u99.15o ;10	aSl.1: v17.15o ;10
aFl.1: v08.28i ;03	aSl.2: v08.12i ;03
aFl.1: v09.28i ;03	aSl.2: v09.12i ;03
aFl.1: v16.16o ;10	aSl.2: v17.16o ;10
aFl.2: v08.26i ;03	BackVCC: f02.6o, E50 ;42
aFl.2: v09.26i ;03	BackVCC: E51 ;42
aFl.2: u50.1i ;04	BackVCC: E151 ;42
aFl.2: v16.19o ;10	BackVCC: E150 ;42
AllowMDR_: u61.3i, u43.3i ;07	Bank.0: u07.13i ;25
AllowMDR_: v94.5o, E11 ;10	Bank.0: u04.3i, v19.13o ;26
	Bank.0: u05.6i ;28
AltUAddr': v58.1i ;05	
AltUAddr': u18.7o ;11	Bank.1: u11.13i ;25
	Bank.1: u04.2i, v19.14o ;26
AlwaysClk-a: u68.9i ;10	Bank.1: u05.5i ;28
AlwaysClk-a: u99.9i ;10	
AlwaysClk-a: u30.11i ;10	Bank_': v57.10o ;11
AlwaysClk-a: v21.2o ;18	Bank_': v19.9i ;26
AlwaysClk-a: v02.11i ;29	
AlwaysClk-a: u14.11i ;31	Bx.0: v06.18o, J1.21 ;38
	Bx.0: u21.2i ;40
AlwaysClk-b: u91.9i, u89.9i ;05	Bx.0: u21.20i ;40

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Bx.0:	u21.65o ;40	Bx.1:	u20.3i ;40
Bx.0:	u20.65o ;40		
Bx.0:	u20.20i ;40	Bx.2:	v06.16o, J1.23 ;38
Bx.0:	u20.2i ;40	Bx.2:	u21.4i ;40
		Bx.2:	u21.22i ;40
Bx.10:	v24.16o, J1.32 ;38	Bx.2:	u21.63o ;40
Bx.10:	u21.12i ;40	Bx.2:	u20.63o ;40
Bx.10:	u21.30i ;40	Bx.2:	u20.22i ;40
Bx.10:	u21.54o ;40	Bx.2:	u20.4i ;40
Bx.10:	u20.54o ;40		
Bx.10:	u20.30i ;40	Bx.3:	v06.15o, J1.24 ;38
Bx.10:	u20.12i ;40	Bx.3:	u21.5i ;40
		Bx.3:	u21.23i ;40
Bx.11:	v24.15o, J1.33 ;38	Bx.3:	u21.62o ;40
Bx.11:	u21.13i ;40	Bx.3:	u20.62o ;40
Bx.11:	u21.31i ;40	Bx.3:	u20.23i ;40
Bx.11:	u21.53o ;40	Bx.3:	u20.5i ;40
Bx.11:	u20.53o ;40		
Bx.11:	u20.31i ;40	Bx.4:	v06.14o, J1.25 ;38
Bx.11:	u20.13i ;40	Bx.4:	u21.6i ;40
		Bx.4:	u21.24i ;40
Bx.12:	v24.14o, J1.34 ;38	Bx.4:	u21.61o ;40
Bx.12:	u21.15i ;40	Bx.4:	u20.61o ;40
Bx.12:	u21.32i ;40	Bx.4:	u20.24i ;40
Bx.12:	u21.52o ;40	Bx.4:	u20.6i ;40
Bx.12:	u20.52o ;40		
Bx.12:	u20.32i ;40	Bx.5:	v06.13o, J1.26 ;38
Bx.12:	u20.15i ;40	Bx.5:	u21.7i ;40
		Bx.5:	u21.25i ;40
Bx.13:	v24.13o, J1.35 ;38	Bx.5:	u21.60o ;40
Bx.13:	u21.16i ;40	Bx.5:	u20.60o ;40
Bx.13:	u21.34i ;40	Bx.5:	u20.25i ;40
Bx.13:	u21.50o ;40	Bx.5:	u20.7i ;40
Bx.13:	u20.50o ;40		
Bx.13:	u20.34i ;40	Bx.6:	v06.12o, J1.27 ;38
Bx.13:	u20.16i ;40	Bx.6:	u21.8i ;40
		Bx.6:	u21.26i ;40
Bx.14:	v24.12o, J1.36 ;38	Bx.6:	u21.59o ;40
Bx.14:	u21.18i ;40	Bx.6:	u20.59o ;40
Bx.14:	u21.49o ;40	Bx.6:	u20.26i ;40
Bx.14:	u21.36o ;40	Bx.6:	u20.8i ;40
Bx.14:	u20.36o ;40		
Bx.14:	u20.49o ;40	Bx.7:	v06.11o, J1.28 ;38
Bx.14:	u20.18i ;40	Bx.7:	u21.9i ;40
		Bx.7:	u21.27i ;40
Bx.15:	v24.11o, J1.37 ;38	Bx.7:	u21.57o ;40
Bx.15:	u21.19i ;40	Bx.7:	u20.57o ;40
Bx.15:	u21.48o ;40	Bx.7:	u20.27i ;40
Bx.15:	u21.38o ;40	Bx.7:	u20.9i ;40
Bx.15:	u20.38o ;40		
Bx.15:	u20.48o ;40	Bx.8:	v24.18o, J1.30 ;38
Bx.15:	u20.19i ;40	Bx.8:	u21.10i ;40
		Bx.8:	u21.28i ;40
Bx.1:	v06.17o, J1.22 ;38	Bx.8:	u21.56o ;40
Bx.1:	u21.3i ;40	Bx.8:	u20.56o ;40
Bx.1:	u21.21i ;40	Bx.8:	u20.28i ;40
Bx.1:	u21.64o ;40	Bx.8:	u20.10i ;40
Bx.1:	u20.64o ;40		
Bx.1:	u20.21i ;40	Bx.9:	v24.17o, J1.31 ;38

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	TITLE SCHEMATIC, CPE-FP		A4	SHEET 48 OF	A

Bx.9: u21.11i ;40	ClrIntErrr': u52.13o, #TP176.1i ;11
Bx.9: u21.29i ;40	ClrIntErrr': u45.3i ;17
Bx.9: u21.55o ;40	ClrIntErrr': u29.6i ;24
Bx.9: u20.55o ;40	
Bx.9: u20.29i ;40	ClrKFlags': v57.7o, E187 ;11
Bx.9: u20.11i ;40	ClrRefReg': v57.9o, E186 ;11
Byte': v46.1i ;09	
Byte': u34.8o ;12	CSA.00': v25.16i ;20
	CSA.00': v10.16i ;20
Byte: v95.10o ;38	CSA.00': v27.16i ;20
Byte: u46.2i ;38	CSA.00': v12.16i ;20
Byte: u46.4i ;38	CSA.00': v14.16i ;20
Byte: v32.5i ;38	CSA.00': v29.16i ;20
	CSA.00': v26.16i ;20
C2Clk: u49.11i ;16	CSA.00': v11.16i ;20
C2Clk: v05.11o ;18	CSA.00': v13.16i ;20
	CSA.00': v28.16i ;20
CarryOut: u81.33o ;03	CSA.00': v30.16i ;20
CarryOut: u63.6i ;04	CSA.00': v15.16i ;20
CarryOut: v07.14i ;13	CSA.00': u36.16i ;21
	CSA.00': u55.16i ;21
CIN-SE-wrSU': u62.12i ;04	CSA.00': u57.16i ;21
CIN-SE-wrSU': u72.1i ;05	CSA.00': u38.16i ;21
CIN-SE-wrSU': u68.3o ;10	CSA.00': u40.16i ;21
	CSA.00': u59.16i ;21
CIN-SE-wrSU: u68.2o ;10	CSA.00': u56.16i ;21
CIN-SE-wrSU: v04.1i ;18	CSA.00': u37.16i ;21
	CSA.00': u39.16i ;21
CIN-SE: v09.29i ;03	CSA.00': u58.16i ;21
CIN-SE: u90.13i ;04	CSA.00': u60.16i ;21
CIN-SE: u63.12i ;04	CSA.00': u41.16i ;21
CIN-SE: u63.5i, u63.4i ;04	CSA.00': u74.16i ;22
CIN-SE: u62.4i, u62.11o, u62.8o ;04	CSA.00': u92.16i ;22
CIN-SE: #TP7.1i	CSA.00': u94.16i ;22
CIN-SE: #R2.2i ;27	CSA.00': u76.16i ;22
	CSA.00': u78.16i ;22
CIN_pc16: u62.10i ;04	CSA.00': u96.16i ;22
CIN_pc16: u72.11o ;12	CSA.00': u93.16i ;22
CIN_pc16: u44.6i ;17	CSA.00': u75.16i ;22
	CSA.00': u77.16i ;22
CIN_pc16X': u62.13i ;04	CSA.00': u95.16i ;22
CIN_pc16X': u15.11o ;11	CSA.00': u97.16i ;22
CIN_pc16X': u72.12i ;12	CSA.00': u79.16i ;22
	CSA.00': u66.12o ;27
CIN_pc16Z': u18.12o ;11	CSA.00': u05.12o ;28
CIN_pc16Z': u72.13i ;12	
	CSA.01': v25.17i ;20
Click.0: E102, u73.16i ;16	CSA.01': v10.17i ;20
	CSA.01': v27.17i ;20
Click.1: E103, u73.17i ;16	CSA.01': v12.17i ;20
	CSA.01': v14.17i ;20
Click.2: E104, u73.1i ;16	CSA.01': v29.17i ;20
Click.2: v86.13i ;28	CSA.01': v26.17i ;20
	CSA.01': v11.17i ;20
Click.2Pin': v86.7o, u01.6i ;28	CSA.01': v13.17i ;20
	CSA.01': v28.17i ;20
ClrDPReq': v57.11o, E185 ;11	CSA.01': v30.17i ;20
	CSA.01': v15.17i ;20

CSA.01':	u36.17i	;21	CSA.02':	u77.18i	;22
CSA.01':	u55.17i	;21	CSA.02':	u95.18i	;22
CSA.01':	u57.17i	;21	CSA.02':	u97.18i	;22
CSA.01':	u38.17i	;21	CSA.02':	u79.18i	;22
CSA.01':	u40.17i	;21	CSA.02':	u66.10o	;27
CSA.01':	u59.17i	;21	CSA.02':	u05.14o	;28
CSA.01':	u56.17i	;21			
CSA.01':	u37.17i	;21	CSA.03':	v25.19i	;20
CSA.01':	u39.17i	;21	CSA.03':	v10.19i	;20
CSA.01':	u58.17i	;21	CSA.03':	v27.19i	;20
CSA.01':	u60.17i	;21	CSA.03':	v12.19i	;20
CSA.01':	u41.17i	;21	CSA.03':	v14.19i	;20
CSA.01':	u74.17i	;22	CSA.03':	v29.19i	;20
CSA.01':	u92.17i	;22	CSA.03':	v26.19i	;20
CSA.01':	u94.17i	;22	CSA.03':	v11.19i	;20
CSA.01':	u76.17i	;22	CSA.03':	v13.19i	;20
CSA.01':	u78.17i	;22	CSA.03':	v28.19i	;20
CSA.01':	u96.17i	;22	CSA.03':	v30.19i	;20
CSA.01':	u93.17i	;22	CSA.03':	v15.19i	;20
CSA.01':	u75.17i	;22	CSA.03':	u36.19i	;21
CSA.01':	u77.17i	;22	CSA.03':	u55.19i	;21
CSA.01':	u95.17i	;22	CSA.03':	u57.19i	;21
CSA.01':	u97.17i	;22	CSA.03':	u38.19i	;21
CSA.01':	u79.17i	;22	CSA.03':	u40.19i	;21
CSA.01':	u66.11o	;27	CSA.03':	u59.19i	;21
CSA.01':	u05.13o	;28	CSA.03':	u56.19i	;21
			CSA.03':	u37.19i	;21
CSA.02':	v25.18i	;20	CSA.03':	u39.19i	;21
CSA.02':	v10.18i	;20	CSA.03':	u58.19i	;21
CSA.02':	v27.18i	;20	CSA.03':	u60.19i	;21
CSA.02':	v12.18i	;20	CSA.03':	u41.19i	;21
CSA.02':	v14.18i	;20	CSA.03':	u74.19i	;22
CSA.02':	v29.18i	;20	CSA.03':	u92.19i	;22
CSA.02':	v26.18i	;20	CSA.03':	u94.19i	;22
CSA.02':	v11.18i	;20	CSA.03':	u76.19i	;22
CSA.02':	v13.18i	;20	CSA.03':	u78.19i	;22
CSA.02':	v28.18i	;20	CSA.03':	u96.19i	;22
CSA.02':	v30.18i	;20	CSA.03':	u93.19i	;22
CSA.02':	v15.18i	;20	CSA.03':	u75.19i	;22
CSA.02':	u36.18i	;21	CSA.03':	u77.19i	;22
CSA.02':	u55.18i	;21	CSA.03':	u95.19i	;22
CSA.02':	u57.18i	;21	CSA.03':	u97.19i	;22
CSA.02':	u38.18i	;21	CSA.03':	u79.19i	;22
CSA.02':	u40.18i	;21	CSA.03':	u66.9o	;27
CSA.02':	u59.18i	;21	CSA.03':	u05.15o	;28
CSA.02':	u56.18i	;21			
CSA.02':	u37.18i	;21	CSA.04':	v25.1i	;20
CSA.02':	u39.18i	;21	CSA.04':	v10.1i	;20
CSA.02':	u58.18i	;21	CSA.04':	v27.1i	;20
CSA.02':	u60.18i	;21	CSA.04':	v12.1i	;20
CSA.02':	u41.18i	;21	CSA.04':	v14.1i	;20
CSA.02':	u74.18i	;22	CSA.04':	v29.1i	;20
CSA.02':	u92.18i	;22	CSA.04':	v26.1i	;20
CSA.02':	u94.18i	;22	CSA.04':	v11.1i	;20
CSA.02':	u76.18i	;22	CSA.04':	v13.1i	;20
CSA.02':	u78.18i	;22	CSA.04':	v28.1i	;20
CSA.02':	u96.18i	;22	CSA.04':	v30.1i	;20
CSA.02':	u93.18i	;22	CSA.04':	v15.1i	;20
CSA.02':	u75.18i	;22	CSA.04':	u36.1i	;21

XEROX	PROPRIETARY NOTE ON COVER SHEET APPLIES TO ALL SHEETS		DWG SIZE A4	DWG NO. 156P12560		SHEET REV. A
	TITLE	SCHEMATIC, CPE-FP		SHEET	50	

CSA.04':	u55.1i	:21	CSA.05':	u95.2i	:22
CSA.04':	u57.1i	:21	CSA.05':	u97.2i	:22
CSA.04':	u38.1i	:21	CSA.05':	u79.2i	:22
CSA.04':	u40.1i	:21	CSA.05':	u98.15o	:27
CSA.04':	u59.1i	:21	CSA.05':	u05.17o	:28
CSA.04':	u56.1i	:21			
CSA.04':	u37.1i	:21	CSA.06':	v25.3i	:20
CSA.04':	u39.1i	:21	CSA.06':	v10.3i	:20
CSA.04':	u58.1i	:21	CSA.06':	v27.3i	:20
CSA.04':	u60.1i	:21	CSA.06':	v12.3i	:20
CSA.04':	u41.1i	:21	CSA.06':	v14.3i	:20
CSA.04':	u74.1i	:22	CSA.06':	v29.3i	:20
CSA.04':	u92.1i	:22	CSA.06':	v26.3i	:20
CSA.04':	u94.1i	:22	CSA.06':	v11.3i	:20
CSA.04':	u76.1i	:22	CSA.06':	v13.3i	:20
CSA.04':	u78.1i	:22	CSA.06':	v28.3i	:20
CSA.04':	u96.1i	:22	CSA.06':	v30.3i	:20
CSA.04':	u93.1i	:22	CSA.06':	v15.3i	:20
CSA.04':	u75.1i	:22	CSA.06':	u36.3i	:21
CSA.04':	u77.1i	:22	CSA.06':	u55.3i	:21
CSA.04':	u95.1i	:22	CSA.06':	u57.3i	:21
CSA.04':	u97.1i	:22	CSA.06':	u38.3i	:21
CSA.04':	u79.1i	:22	CSA.06':	u40.3i	:21
CSA.04':	u98.16o	:27	CSA.06':	u59.3i	:21
CSA.04':	u05.16o	:28	CSA.06':	u56.3i	:21
			CSA.06':	u37.3i	:21
CSA.05':	v25.2i	:20	CSA.06':	u39.3i	:21
CSA.05':	v10.2i	:20	CSA.06':	u58.3i	:21
CSA.05':	v27.2i	:20	CSA.06':	u60.3i	:21
CSA.05':	v12.2i	:20	CSA.06':	u41.3i	:21
CSA.05':	v14.2i	:20	CSA.06':	u74.3i	:22
CSA.05':	v29.2i	:20	CSA.06':	u92.3i	:22
CSA.05':	v26.2i	:20	CSA.06':	u94.3i	:22
CSA.05':	v11.2i	:20	CSA.06':	u76.3i	:22
CSA.05':	v13.2i	:20	CSA.06':	u78.3i	:22
CSA.05':	v28.2i	:20	CSA.06':	u96.3i	:22
CSA.05':	v30.2i	:20	CSA.06':	u93.3i	:22
CSA.05':	v15.2i	:20	CSA.06':	u75.3i	:22
CSA.05':	u36.2i	:21	CSA.06':	u77.3i	:22
CSA.05':	u55.2i	:21	CSA.06':	u95.3i	:22
CSA.05':	u57.2i	:21	CSA.06':	u97.3i	:22
CSA.05':	u38.2i	:21	CSA.06':	u79.3i	:22
CSA.05':	u40.2i	:21	CSA.06':	u98.14o	:27
CSA.05':	u59.2i	:21	CSA.06':	u05.18o	:28
CSA.05':	u56.2i	:21			
CSA.05':	u37.2i	:21	CSA.07':	v25.4i	:20
CSA.05':	u39.2i	:21	CSA.07':	v10.4i	:20
CSA.05':	u58.2i	:21	CSA.07':	v27.4i	:20
CSA.05':	u60.2i	:21	CSA.07':	v12.4i	:20
CSA.05':	u41.2i	:21	CSA.07':	v14.4i	:20
CSA.05':	u74.2i	:22	CSA.07':	v29.4i	:20
CSA.05':	u92.2i	:22	CSA.07':	v26.4i	:20
CSA.05':	u94.2i	:22	CSA.07':	v11.4i	:20
CSA.05':	u76.2i	:22	CSA.07':	v13.4i	:20
CSA.05':	u78.2i	:22	CSA.07':	v28.4i	:20
CSA.05':	u96.2i	:22	CSA.07':	v30.4i	:20
CSA.05':	u93.2i	:22	CSA.07':	v15.4i	:20
CSA.05':	u75.2i	:22	CSA.07':	u36.4i	:21
CSA.05':	u77.2i	:22	CSA.07':	u55.4i	:21

CSA.07':	u57.4i	:21	CSA.08':	u97.5i	:22
CSA.07':	u38.4i	:21	CSA.08':	u79.5i	:22
CSA.07':	u40.4i	:21	CSA.08':	u98.12o	:27
CSA.07':	u59.4i	:21	CSA.08':	u05.20o	:28
CSA.07':	u56.4i	:21			
CSA.07':	u37.4i	:21	CSA.09':	v25.6i	:20
CSA.07':	u39.4i	:21	CSA.09':	v10.6i	:20
CSA.07':	u58.4i	:21	CSA.09':	v27.6i	:20
CSA.07':	u60.4i	:21	CSA.09':	v12.6i	:20
CSA.07':	u41.4i	:21	CSA.09':	v14.6i	:20
CSA.07':	u74.4i	:22	CSA.09':	v29.6i	:20
CSA.07':	u92.4i	:22	CSA.09':	v26.6i	:20
CSA.07':	u94.4i	:22	CSA.09':	v11.6i	:20
CSA.07':	u76.4i	:22	CSA.09':	v13.6i	:20
CSA.07':	u78.4i	:22	CSA.09':	v28.6i	:20
CSA.07':	u96.4i	:22	CSA.09':	v30.6i	:20
CSA.07':	u93.4i	:22	CSA.09':	v15.6i	:20
CSA.07':	u75.4i	:22	CSA.09':	u36.6i	:21
CSA.07':	u77.4i	:22	CSA.09':	u55.6i	:21
CSA.07':	u95.4i	:22	CSA.09':	u57.6i	:21
CSA.07':	u97.4i	:22	CSA.09':	u38.6i	:21
CSA.07':	u79.4i	:22	CSA.09':	u40.6i	:21
CSA.07':	u98.13o	:27	CSA.09':	u59.6i	:21
CSA.07':	u05.19o	:28	CSA.09':	u56.6i	:21
			CSA.09':	u37.6i	:21
CSA.08':	v25.5i	:20	CSA.09':	u39.6i	:21
CSA.08':	v10.5i	:20	CSA.09':	u58.6i	:21
CSA.08':	v27.5i	:20	CSA.09':	u60.6i	:21
CSA.08':	v12.5i	:20	CSA.09':	u41.6i	:21
CSA.08':	v14.5i	:20	CSA.09':	u74.6i	:22
CSA.08':	v29.5i	:20	CSA.09':	u92.6i	:22
CSA.08':	v26.5i	:20	CSA.09':	u94.6i	:22
CSA.08':	v11.5i	:20	CSA.09':	u76.6i	:22
CSA.08':	v13.5i	:20	CSA.09':	u78.6i	:22
CSA.08':	v28.5i	:20	CSA.09':	u96.6i	:22
CSA.08':	v30.5i	:20	CSA.09':	u93.6i	:22
CSA.08':	v15.5i	:20	CSA.09':	u75.6i	:22
CSA.08':	u36.5i	:21	CSA.09':	u77.6i	:22
CSA.08':	u55.5i	:21	CSA.09':	u95.6i	:22
CSA.08':	u57.5i	:21	CSA.09':	u97.6i	:22
CSA.08':	u38.5i	:21	CSA.09':	u79.6i	:22
CSA.08':	u40.5i	:21	CSA.09':	u98.11o	:27
CSA.08':	u59.5i	:21	CSA.09':	u05.9i	:28
CSA.08':	u56.5i	:21			
CSA.08':	u37.5i	:21	CSA.10':	v25.7i	:20
CSA.08':	u39.5i	:21	CSA.10':	v10.7i	:20
CSA.08':	u58.5i	:21	CSA.10':	v27.7i	:20
CSA.08':	u60.5i	:21	CSA.10':	v12.7i	:20
CSA.08':	u41.5i	:21	CSA.10':	v14.7i	:20
CSA.08':	u74.5i	:22	CSA.10':	v29.7i	:20
CSA.08':	u92.5i	:22	CSA.10':	v26.7i	:20
CSA.08':	u94.5i	:22	CSA.10':	v11.7i	:20
CSA.08':	u76.5i	:22	CSA.10':	v13.7i	:20
CSA.08':	u78.5i	:22	CSA.10':	v28.7i	:20
CSA.08':	u96.5i	:22	CSA.10':	v30.7i	:20
CSA.08':	u93.5i	:22	CSA.10':	v15.7i	:20
CSA.08':	u75.5i	:22	CSA.10':	u36.7i	:21
CSA.08':	u77.5i	:22	CSA.10':	u55.7i	:21
CSA.08':	u95.5i	:22	CSA.10':	u57.7i	:21

XEROX	PROPRIETARY NOTE ON COVER SHEET APPLIES TO ALL SHEETS		DWG SIZE A4	DWG NO. 156P12560		SHEET REV. A
	TITLE	SCHEMATIC, CPE-FP		SHEET 52	OF	

CSA.10':	u38.7i	;21	CSA.11':	u79.8i	;22
CSA.10':	u40.7i	;21	CSA.11':	u98.9o	;27
CSA.10':	u59.7i	;21	CSA.11':	u05.7i	;28
CSA.10':	u56.7i	;21			
CSA.10':	u37.7i	;21	CSBank.0':	v10.9i	;20
CSA.10':	u39.7i	;21	CSBank.0':	v25.9i	;20
CSA.10':	u58.7i	;21	CSBank.0':	v26.9i	;20
CSA.10':	u60.7i	;21	CSBank.0':	v27.9i	;20
CSA.10':	u41.7i	;21	CSBank.0':	v28.9i	;20
CSA.10':	u74.7i	;22	CSBank.0':	v14.9i	;20
CSA.10':	u92.7i	;22	CSBank.0':	v29.9i	;20
CSA.10':	u94.7i	;22	CSBank.0':	v30.9i	;20
CSA.10':	u76.7i	;22	CSBank.0':	v15.9i	;20
CSA.10':	u78.7i	;22	CSBank.0':	v13.9i	;20
CSA.10':	u96.7i	;22	CSBank.0':	v12.9i	;20
CSA.10':	u93.7i	;22	CSBank.0':	v11.9i	;20
CSA.10':	u75.7i	;22	CSBank.0':	u66.16o	;27
CSA.10':	u77.7i	;22			
CSA.10':	u95.7i	;22	CSBank.1':	u55.9i	;21
CSA.10':	u97.7i	;22	CSBank.1':	u56.9i	;21
CSA.10':	u79.7i	;22	CSBank.1':	u57.9i	;21
CSA.10':	u98.10o	;27	CSBank.1':	u58.9i	;21
CSA.10':	u05.8i	;28	CSBank.1':	u59.9i	;21
			CSBank.1':	u60.9i	;21
CSA.11':	v25.8i	;20	CSBank.1':	u41.9i	;21
CSA.11':	v10.8i	;20	CSBank.1':	u40.9i	;21
CSA.11':	v27.8i	;20	CSBank.1':	u39.9i	;21
CSA.11':	v12.8i	;20	CSBank.1':	u38.9i	;21
CSA.11':	v14.8i	;20	CSBank.1':	u37.9i	;21
CSA.11':	v29.8i	;20	CSBank.1':	u36.9i	;21
CSA.11':	v26.8i	;20	CSBank.1':	u66.15o	;27
CSA.11':	v11.8i	;20			
CSA.11':	v13.8i	;20	CSBank.2':	u92.9i	;22
CSA.11':	v28.8i	;20	CSBank.2':	u93.9i	;22
CSA.11':	v30.8i	;20	CSBank.2':	u94.9i	;22
CSA.11':	v15.8i	;20	CSBank.2':	u95.9i	;22
CSA.11':	u36.8i	;21	CSBank.2':	u96.9i	;22
CSA.11':	u55.8i	;21	CSBank.2':	u97.9i	;22
CSA.11':	u57.8i	;21	CSBank.2':	u79.9i	;22
CSA.11':	u38.8i	;21	CSBank.2':	u78.9i	;22
CSA.11':	u40.8i	;21	CSBank.2':	u77.9i	;22
CSA.11':	u59.8i	;21	CSBank.2':	u76.9i	;22
CSA.11':	u56.8i	;21	CSBank.2':	u75.9i	;22
CSA.11':	u37.8i	;21	CSBank.2':	u74.9i	;22
CSA.11':	u39.8i	;21	CSBank.2':	u66.14o	;27
CSA.11':	u58.8i	;21			
CSA.11':	u60.8i	;21	CSBank.3':	u66.13o	;27
CSA.11':	u41.8i	;21			
CSA.11':	u74.8i	;22	CSParErr:	u44.2i	;17
CSA.11':	u92.8i	;22	CSParErr:	u45.17i	;17
CSA.11':	u94.8i	;22	CSParErr:	u29.15i, u64.15o, E37	;24
CSA.11':	u76.8i	;22	CSParErr:	u01.15o	;28
CSA.11':	u78.8i	;22			
CSA.11':	u96.8i	;22	CSWE.a':	v71.18o, v50.1i, v50.19i	;19
CSA.11':	u93.8i	;22	CSWE.a':	v25.11i	;20
CSA.11':	u75.8i	;22	CSWE.a':	v10.11i	;20
CSA.11':	u77.8i	;22	CSWE.a':	u36.11i	;21
CSA.11':	u95.8i	;22	CSWE.a':	u55.11i	;21
CSA.11':	u97.8i	;22	CSWE.a':	u74.11i	;22

XEROX	PROPRIETARY NOTE ON COVER SHEET APPLIES TO ALL SHEETS		DWG SIZE	DWG NO. 156P12560	SHEET REV.
	TITLE SCHEMATIC, CPE-FP		A4	SHEET 53 OF	A

CSWE.a':	u92.11i ;22	Ct=Emu:	u45.4i ;17
CSWE.b':	v71.16o, v51.1i, v51.19i ;19	Cycle1':	E2, v86.2i ;18
CSWE.b':	v11.11i ;20		
CSWE.b':	v26.11i ;20	Cycle1:	u45.7i ;17
CSWE.b':	u37.11i ;21	Cycle1:	v86.18o, u31.13i ;18
CSWE.b':	u56.11i ;21	Cycle1:	u70.9i ;18
CSWE.b':	u75.11i ;22	Cycle1:	v96.4i, v18.4i ;32
CSWE.b':	u93.11i ;22	Cycle1:	v00.3i ;32
CSWE.c':	v71.14o, v52.1i, v52.19i ;19	Cycle2':	u73.10i ;16
CSWE.c':	v12.11i ;20	Cycle2':	E3, v86.4i ;18
CSWE.c':	v27.11i ;20		
CSWE.c':	u38.11i ;21	Cycle2:	v23.2i ;13
CSWE.c':	u57.11i ;21	Cycle2:	v97.11i ;16
CSWE.c':	u76.11i ;22	Cycle2:	v63.6i ;16
CSWE.c':	u94.11i ;22	Cycle2:	v86.16o, v05.12i ;18
CSWE.d':	v71.12o, v53.1i, v53.19i ;19	Cycle2:	v96.7i, v18.7i ;32
CSWE.d':	v13.11i ;20	Cycle2:	v00.4i ;32
CSWE.d':	v28.11i ;20	Cycle3':	E4, v86.6i ;18
CSWE.d':	u39.11i ;21		
CSWE.d':	u58.11i ;21	Cycle3:	u72.4i ;10
CSWE.d':	u77.11i ;22	Cycle3:	v22.13i ;18
CSWE.d':	u95.11i ;22	Cycle3:	v86.14o ;18
CSWE.e':	v71.3o, v54.1i, v54.19i ;19	Cycle3:	u69.13i ;31
CSWE.e':	v14.11i ;20	Cycle3:	u14.12i ;31
CSWE.e':	v29.11i ;20	Cycle3:	v86.8i ;36
CSWE.e':	u40.11i ;21	Cycle3Pin':	u01.5i ;28
CSWE.e':	u59.11i ;21	Cycle3Pin':	v86.12o, J2.16 ;36
CSWE.e':	u78.11i ;22		
CSWE.e':	u96.11i ;22	CycleX':	u15.12o ;11
CSWE.f':	v55.1i, v71.5o, v55.19i ;19	CycleX':	u53.2i ;12
CSWE.f':	v15.11i ;20		
CSWE.f':	v30.11i ;20	CycleY':	u52.7o ;11
CSWE.f':	u41.11i ;21	CycleY':	u53.1i ;12
CSWE.f':	u60.11i ;21	DBorder_':	v89.15o, E25 ;11
CSWE.f':	u79.11i ;22		
CSWE.f':	u97.11i ;22	DCtlFifo_':	v67.9o, E24 ;11
Ct.0:	u49.2o, #TP65.1i ;16	DCtl_':	v67.7o, E124 ;11
Ct.0:	u49.13i ;16		
Ct.0:	v63.15i ;16	DesClk:	v01.14i ;30
Ct.0:	u01.13o ;28	DesClk:	u14.8o ;31
Ct.1:	u49.5o, #TP66.1i ;16	DesClk:	u14.3i ;32
Ct.1:	u49.14i ;16	DesError:	u01.14o ;28
Ct.1:	v63.1i ;16		
Ct.1:	u01.8i ;28	DesMpError:	v33.9o, v18.3i, v96.3i ;32
Ct.2:	u49.6o, #TP67.1i ;16	DesMpState.0:	v33.2o, v18.15i ;32
Ct.2:	u49.17i ;16	DesMpState.0:	v96.15i
Ct.2:	v63.2i ;16	DesMpState.1:	v33.5o, v18.1i ;32
Ct.2:	u01.7i ;28	DesMpState.1:	v96.1i
Ct=Emu:	u49.9o, #TP68.1i ;16	DesMpState.2:	v33.6o, v18.2i ;32
Ct=Emu:	u49.18i ;16		

DesMpState.2: v96.2i	EKTrapc2': #TP79.1i, v02.6o ;17
DesReset': v33.1i, u14.5o, u85.1i ;32	EKTrapc2: u48.15i ;14
DesSpError: v33.19o, v00.2i ;32	EKTrapc2: v43.15i ;14
DesSpState.0: v33.15o, v00.15i ;32	EKTrapc2: #TP80.1i, v02.9o ;17
DesSpState.1: v33.16o, v00.1i ;32	EmuMemErr: #TP199.1i, u64.6o ;17
DES_': u32.14o ;11	EmuMemErr: u45.16i
DES_': u87.9i ;30	EnableSU: v42.17i ;05
DES_': v96.6i, v18.6i ;32	EnableSU: v69.17i ;05
Disp-Proc': E66, u34.12i ;18	EnableSU: v41.17i ;05
DispBr': u71.5i, u71.10i, u71.3o ;12	EnableSU: v68.17i ;05
DispBr.0': v77.4o, #TP24.1i ;13	EnableSU: u72.2i ;05
DispBr.0': v05.2i ;14	EnableSU: u67.5o ;10
DispBr.1': v77.7o, #TP25.1i ;13	EnDispBr.3A': u71.6o ;12
DispBr.1': v05.5i ;14	EnDispBr.3A': v07.7i ;13
DispBr.2': v23.6o, #TP26.1i ;13	EnDispBr0-1': u71.11o ;12
DispBr.2': v20.2i ;14	EnDispBr0-1': v77.15i ;13
DispBr.3A': v07.6o, #TP27.1i ;13	EnDispBr2-3B': u71.13i, u71.8o ;12
DispBr.3A': v20.4i ;14	EnDispBr2-3B': v23.7i ;13
DispBr.3B': v49.6o, #TP28.1i ;13	EnDispBr2-3B': v49.7i ;13
DispBr.3B': v20.3i ;14	EnLRotn': v81.13i, v82.13i ;08
DPReq': E85, u73.2i ;16	EnLRotn': v88.13i, v80.13i
DRef': v38.4i, u34.11o, v86.17i ;18	EnLRotn': u33.8o ;12
DRef: v86.3o, u70.13i ;18	EnterKernel': u52.14o, #TP175.1i ;11
EICtl_': v67.10o, E123 ;11	EnterKernel': u44.4i ;17
EKErr.0': v60.2i ;09	EOCtl_': v89.11o, E126 ;11
EKErr.0': #TP81.1i, v02.12o ;17	EOData_': v67.11o, E23 ;11
EKErr.0': u45.6i	EORound: E89, u73.15i ;16
EKErr.0': u01.16o ;28	EReq': E86, u73.4i ;16
EKErr.1': v60.4i ;09	EReq': u88.4i ;27
EKErr.1': #TP82.1i, v02.15o ;17	EStrobe': v79.7o, E35 ;11
EKErr.1': u45.5i	ExitKernel': u52.15o, #TP174.1i ;11
EKErr.1': u01.17o ;28	ExitKernel': u44.3i ;17
EKTrapc2': v92.3i, v92.11i ;14	ExtPwr: J2.14, f01.6o, J2.15 ;36
EKTrapc2': v92.5i ;14	ExtPwr: J1.05, J1.06 ;38
EKTrapc2': v91.3i, v91.11i ;14	F.0: u81.31o ;03
EKTrapc2': v91.5i ;14	F.0: v07.4i ;13
EKTrapc2': v90.3i, v90.11i ;14	Feq0: v21.13i, u80.11o ;03
EKTrapc2': v90.5i ;14	Feq0: v08.11o ;03
EKTrapc2': v93.3i, v93.11i ;14	Feq0: v09.11o ;03
EKTrapc2': v93.5i ;14	Feq0: u81.11o ;03
	Feq0: v07.3i ;13
	Feq0: #R1.2i ;27

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Fne0: v21.12o ;03	fS.3': u33.13i ;12
Fne0: v07.2i ;13	fS.3': u21.46o ;40
FPCLK: J1.04 ;38	fS.3: u68.15o ;10
FPCLK: u46.12o ;38	fS.3: u18.5i, u32.5i ;11
FPCLK: u21.35o ;40	fS.3: v79.6i ;11
FPCLK: u20.35o ;40	fS.3: u34.4i ;12
FPI.0: v03.2i ;36	fS.3: u33.2i ;12
FPI.0: J1.07 ;38	fS.3: u53.9i ;12
FPI.1: v03.4i ;36	fX.0: u30.2o ;10
FPI.1: J1.08 ;38	fX.0: u15.6i ;11
FPI.2: v03.6i ;36	fX.0: u84.2i, u35.2i ;15
FPI.2: J1.09 ;38	fX.1: u30.5o ;10
FPI.3: v03.8i ;36	fX.1: u15.3i ;11
FPI.3: J1.10 ;38	fX.1: u84.14i ;15
FPS.0: v03.13i ;36	fX.2: u30.6o ;10
FPS.0: u21.66o ;40	fX.2: u15.2i ;11
FPS.0: u20.66o ;40	fX.2: u84.15i ;15
FPS.1: v03.15i ;36	fX.3: u30.9o ;10
FPS.1: u21.67o ;40	fX.3: u15.1i ;11
FPS.1: u20.67o ;40	fX.3: u84.1i ;15
FPS.2: v03.17i ;36	fY.0': u68.6o ;10
FPS.2: u21.1i ;40	fY.0': v57.4i ;11
FPS.2: u20.1i ;40	fY.0': v89.4i ;11
fS.0: u67.16o ;10	fY.0': u71.9i ;12
fS.0: v67.6i, v89.6i ;11	fY.0: v46.2i ;09
fS.0: u52.5i, v57.5i ;11	fY.0: u68.7o ;10
fS.0: u34.10i ;12	fY.0: u52.4i ;11
fS.0: u71.2i ;12	fY.0: v67.4i ;11
fS.1: u67.19o ;10	fY.0: u71.4i ;12
fS.1: u52.6i, v57.6i ;11	fY.0: J1.12 ;38
fS.1: v67.5i, v89.5i ;11	fY.0: u46.5i ;38
fS.1: u34.9i ;12	fY.1: v46.5i ;09
fS.1: u71.1i ;12	fY.1: u67.9o ;10
fS.2': u68.11o ;10	fY.1: u52.3i ;11
fS.2': v79.5i, v87.5i ;11	fY.1: v57.3i ;11
fS.2': u18.6i ;11	fY.1: v67.3i ;11
fS.2': u33.12i ;12	fY.1: v89.3i ;11
fS.2': u34.5i ;12	fY.1: u71.12i ;12
fS.2: u68.10o ;10	fY.1: v07.9i ;13
fS.2: u32.4i ;11	fY.1: v49.9i ;13
fS.2: u33.1i ;12	fY.1: v23.9i ;13
fS.2: u53.10i ;12	fY.1: J1.13 ;38
fS.2: u20.46o ;40	fY.1: u20.47o ;40
fS.3': u68.14o ;10	fY.1: u21.47o ;40
fS.3': v87.4i ;11	fY.2: v46.11i ;09
	fY.2: u67.12o ;10
	fY.2: u52.2i ;11
	fY.2: v57.2i ;11
	fY.2: v67.2i ;11
	fY.2: v89.2i ;11

fY.2:	v07.10i	;13	fZL.0:	u53.11i	;12
fY.2:	v49.10i	;13	fZL.0:	v95.7o	;38
fY.2:	v23.10i	;13			
fY.2:	J1.14	;38	GND:	u81.30i	;03
fY.2:	u21.39o	;40	GND:	u80.30i	;03
fY.2:	u20.39o	;40	GND:	v08.30i	;03
			GND:	v09.30i	;03
fY.3:	v46.14i	;09	GND:	u80.40i	;03
fY.3:	u67.15o	;10	GND:	v09.40i	;03
fY.3:	u52.1i	;11	GND:	v08.40i	;03
fY.3:	v57.1i	;11	GND:	u81.40i	;03
fY.3:	v67.1i	;11	GND:	v42.19i	;05
fY.3:	v89.1i	;11	GND:	v69.19i	;05
fY.3:	v07.11i	;13	GND:	v41.19i	;05
fY.3:	v49.11i	;13	GND:	v68.19i	;05
fY.3:	v23.11i	;13	GND:	u91.14i, u91.11i, u91.6i	;05
fY.3:	v77.1i	;13	GND:	u91.3i	
fY.3:	J1.15	;38	GND:	v58.15i	;05
fY.3:	u21.40o	;40	GND:	v42.18i	;05
fY.3:	u20.40o	;40	GND:	v68.18i	;05
			GND:	v41.18i	;05
fZ.0:	v85.2i	;09	GND:	v69.18i	;05
fZ.0:	u30.12o	;10	GND:	v48.2i	;06
fZ.0:	u33.9i	;12	GND:	v47.2i	;06
			GND:	u61.15i	;07
fZ.1:	v85.4i	;09	GND:	u43.15i	;07
fZ.1:	u30.15o	;10	GND:	u61.10i	;07
fZ.1:	u18.3i	;11	GND:	u43.10i	;07
fZ.1:	v87.3i	;11	GND:	v38.13i	;07
fZ.1:	v79.3i	;11	GND:	u61.8i	;07
fZ.1:	u32.3i	;11	GND:	u43.8i	;07
fZ.1:	u33.4i, u33.10i	;12	GND:	v65.1i	;07
			GND:	v61.11i, v61.13i, v61.15i	;08
fZ.2:	v81.9i, v82.9i, v88.9i	;08	GND:	v61.17i, v39.11i, v39.13i	
fZ.2:	v80.9i		GND:	v39.15i, v39.17i	
fZ.2:	v59.1i	;09	GND:	v59.13i, v59.10i, v59.6i	;09
fZ.2:	v85.6i	;09	GND:	v59.3i	
fZ.2:	u30.16o	;10	GND:	v46.13i, v46.10i, v46.6i	;09
fZ.2:	u18.2i	;11	GND:	v46.3i	
fZ.2:	v87.2i	;11	GND:	v16.1i	;10
fZ.2:	v79.2i	;11	GND:	u67.1i	;10
fZ.2:	u32.2i	;11	GND:	u30.1i	;10
			GND:	v17.1i	;10
fZ.3:	v81.10i, v82.10i, v88.10i	;08	GND:	u15.4i	;11
fZ.3:	v80.10i		GND:	u15.5i	;11
fZ.3:	v85.8i	;09	GND:	u48.3i	;14
fZ.3:	u30.19o	;10	GND:	u84.13i	;15
fZ.3:	u18.1i	;11	GND:	v45.13i	;15
fZ.3:	v87.1i	;11	GND:	v74.13i	;15
fZ.3:	v79.1i	;11	GND:	v75.13i	;15
fZ.3:	u32.1i	;11	GND:	v44.13i	;15
			GND:	v74.2i	;15
fZH.0:	v79.4i	;11	GND:	v75.2i	;15
fZH.0:	u18.4i	;11	GND:	v44.2i	;15
fZH.0:	v95.2o	;38	GND:	v45.2i	;15
			GND:	v63.13i	;16
fZL.0:	v87.6i	;11	GND:	u49.1i	;16
fZL.0:	u32.6i	;11	GND:	v63.14i	;16
fZL.0:	u33.5i	;12	GND:	u44.15i	;17

GND: u45.2i ;17	GND: #C95.1o, #C45.1o, #C123.1o
GND: u16.15i ;17	GND: #C69.1o, #C70.1o, #C71.1o ;37
GND: u44.13i ;17	GND: #C54.1o, #C55.1o, #C56.1o
GND: u16.13i ;17	GND: #C57.1o, #C58.1o, #C59.1o
GND: u44.14i ;17	GND: #C37.1o, #C38.1o, #C39.1o
GND: u16.14i ;17	GND: #C40.1o, #C41.1o, #C42.1o
GND: u45.10i ;17	GND: #C99.1o, #C100.1o, #C101.1o ;37
GND: u45.8i ;17	GND: #C102.1o, #C103.1o, #C104.1o
GND: u70.3i, u70.2i ;18	GND: #C81.1o, #C82.1o, #C83.1o
GND: v97.3i ;18	GND: #C84.1o, #C85.1o, #C86.1o
GND: v70.19i ;19	GND: #C66.1o, #C67.1o, #C68.1o
GND: v70.1i ;19	GND: #C3.1o, #C89.1o, #C72.1o ;37
GND: v71.19i ;19	GND: #C73.1o, #C75.1o, #C46.1o
GND: v71.1i ;19	GND: #C44.1o, #C52.1o, #C53.1o
GND: u22.13i ;24	GND: #C114.1o, #C115.1o, #C116.1o
GND: u23.13i ;24	GND: #C117.1o, #C118.1o, #C119.1o
GND: u24.13i ;24	GND: #C9.1o, #C50.1o, #C20.1o ;37
GND: u25.13i ;24	GND: #C19.1o, #C18.1o, #C16.1o
GND: u26.13i ;24	GND: #C10.1o, #C29.1o, #C32.1o
GND: u27.13i ;24	GND: #C8.1o, #C6.1o, #C31.1o
GND: u29.8i ;24	GND: #C7.1o, #C5.1o, #C4.1o
GND: u29.10i ;24	GND: #C142.1o, #C143.1o, #C144.1o ;37
GND: v19.10i, v19.7i ;26	GND: #C132.1o, #C146.1o, #C13.1o
GND: u04.1i ;26	GND: #C14.1o, #C15.1o, #C30.1o
GND: u13.4i ;26	GND: #C63.1o, #C77.1o, #C90.1o
GND: u01.9i ;28	GND: #C51.1o, #C93.1o, #C28.1o
GND: u05.1i ;28	GND: #C126.1o, #C125.1o, #C49.1o ;37
GND: u05.11o ;28	GND: #C140.1o, #C139.1o, #C138.1o
GND: u01.2i ;28	GND: #C135.1o, #C136.1o, #C137.1o
GND: u01.19o ;28	GND: #C151.1o, #C152.1o, #C150.1o
GND: u01.12o ;28	GND: #C148.1o, #C141.1o, #C147.1o
GND: u05.10i ;28	GND: v95.6i ;38
GND: v94.1i ;29	GND: J1.02, J1.01, J1.20, J1.03 ;38
GND: u64.1i ;29	GND: v95.12i ;38
GND: v02.1i ;29	GND: u21.17i ;40
GND: u28.1i ;29	GND: u21.33i ;40
GND: v86.19i ;29	GND: u21.68o ;40
GND: v86.1i ;29	GND: u21.51o ;40
GND: v01.20i, v01.1i, v01.30i ;30	GND: u21.42o ;40
GND: v01.25i, v01.13i, v01.28i	GND: u20.42o ;40
GND: v56.1i ;30	GND: u20.51o ;40
GND: v18.14i ;32	GND: u20.68o ;40
GND: v18.13i ;32	GND: u20.33i ;40
GND: v96.14i ;32	GND: u20.17i ;40
GND: v96.13i ;32	GND: #C109.1o, #C128.1o, #C108.1o ;41
GND: v00.14i ;32	GND: #C131.1o, #C124.1o, #C112.1o
GND: v00.13i ;32	GND: #C121.1o, #C120.1o, #C110.1o
GND: v00.5i ;32	GND: #C122.1o, #C134.1o, #C127.1o
GND: u04.13i ;36	GND: #C130.1o, #C129.1o, #C133.1o
GND: u65.1i ;36	GND: #C145.1o, #C47.1o, #C65.1o ;41
GND: u65.19i ;36	GND: #C61.1o, #C88.1o, #C87.1o
GND: v40.1i ;36	GND: #C94.1o, #C106.1o, #C96.1o
GND: u83.1i ;36	GND: #C79.1o, #C80.1o, #C43.1o
GND: J2.37, J2.19, J2.18, J2.17 ;36	GND: #C153.1o, #C98.1o, #C113.1o
GND: u51.8i ;36	GND: #C74.1o, #C107.1o, #C48.1o ;41
GND: #C22.1o, #C23.1o, #C24.1o ;37	GND: #C17.1o, #C21.1o, #C149.1o
GND: #C25.1o, #C26.1o, #C27.1o	GND: #C34.1o, #C35.1o, #C33.1o
GND: #C78.1o, #C105.1o, #C92.1o	GND: #C36.1o, #C111.1o, #C60.1o
GND: #C91.1o, #C97.1o, #C76.1o	GND: #C62.1o, #C1.1o, #C64.1o

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GND: #C155.1o, #C154.1o, #C158.1o ;41 IBDisp': u52.12o, #TP177.1i ;11
GND: #C157.1o, #C2.1o
GND: E10, E20, E30, E40 ;42 IBEmptyErr': u87.6o, u31.4i ;10
GND: E110, E120, E130, E140 ;42
GND: E90, E80, E70, E60 ;42 IBEmptyErr: v38.5o ;07
GND: E190, E180, E170, E160 ;42 IBEmptyErr: u87.5i ;10
GND: u02.8i ;42 IBEmptyErr: u45.15i ;17
GND: u42.10i ;42
GND: #C12.2i, #C11.2i ;42 IBFront_: u61.11o, #TP16.1i ;07
IBFront_: v04.12i ;18
GoodIBDispc2: u61.12o, #TP17.1i ;07
GoodIBDispc2: v43.1i ;14 IBPtr.0: #TP172.1i, u64.2o, u61.6i ;07
GoodIBDispc2: v91.4i ;14 IBPtr.0: u43.6i, v38.1i
GoodIBDispc2: v92.4i ;14 IBPtr.0: v60.6i ;09
GoodIBDispc2: v93.4i ;14
GoodIBDispc2: v90.4i ;14 IBPtr.1: #TP173.1i, u64.5o, u61.5i ;07
GoodIBDispc2: u28.17i ;28 IBPtr.1: u43.5i, v38.12i
IBPtr.1: v60.8i ;09
IBPtr.1: u48.13i ;14
h1b: v22.6o, u70.5i ;18 IBPtr_0': u61.1i, u43.1i ;07
IBPtr_0': u18.13o, #TP180.1i ;11
IB.0: v65.2o, #TP8.1i ;07
IB.0: v59.2i ;09 IBPtr_1': u61.2i, u43.2i ;07
IB.0: v64.2i ;09 IBPtr_1': u18.14o, #TP179.1i ;11
IB.0: v43.3i ;14
IB.1: v65.5o, #TP9.1i ;07
IB.1: v59.5i ;09 IB_' : u61.17i, u43.17i ;07
IB.1: v64.5i ;09 IB_' : u52.9o ;11
IB.1: v43.6i ;14 IB_' : u35.5i ;18
IB.2: v65.6o, #TP10.1i ;07
IB.2: v59.11i ;09 INIA.00: u48.2i ;14
IB.2: v64.11i ;09 INIA.00: v53.3o ;19
IB.2: v43.10i ;14 INIA.00: #TP123.1i, v28.12o ;20
INIA.00: u58.12o ;21
INIA.00: u95.12o ;22
INIA.00: u25.9i ;24
INIA.00: u08.1i ;25
IB.3: v65.9o, #TP11.1i ;07
IB.3: v59.14i ;09 INIA.01: u48.5i ;14
IB.3: v64.14i ;09 INIA.01: v53.5o ;19
IB.3: v43.13i ;14 INIA.01: #TP124.1i, v28.13o ;20
INIA.01: u58.13o ;21
INIA.01: u95.13o ;22
INIA.01: u25.10i ;24
INIA.01: u12.1i ;25
IB.4: v65.12o, #TP12.1i ;07
IB.4: v64.3i ;09 INIA.02: u48.11i ;14
IB.4: v91.6i ;14 INIA.02: v53.7o ;19
INIA.02: #TP125.1i, v28.14o ;20
INIA.02: u58.14o ;21
INIA.02: u95.14o ;22
INIA.02: u25.11i ;24
INIA.02: u09.1i ;25
IB.5: v65.15o, #TP13.1i ;07
IB.5: v64.6i ;09
IB.5: v92.6i ;14
IB.6: v65.16o, #TP14.1i ;07
IB.6: v64.10i ;09
IB.6: v90.6i ;14
IB.7: v65.19o, #TP15.1i ;07
IB.7: v64.13i ;09
IB.7: v93.6i ;14
IBDisp': u61.7i, u43.7i ;07
INIA.03: u48.14i ;14
INIA.03: v53.9o ;19
INIA.03: #TP126.1i, v28.15o ;20
INIA.03: u58.15o ;21
INIA.03: u95.15o ;22

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INIA.03:	u25.12i ;24	INIA.11:	v93.2i ;14
INIA.03:	u54.1i ;25	INIA.11:	v55.9o ;19
		INIA.11:	v30.15o ;20
INIA.04:	v43.2i ;14	INIA.11:	#TP142.1i, u60.15o ;21
INIA.04:	v54.3o ;19	INIA.11:	u97.15o ;22
INIA.04:	v29.12o ;20	INIA.11:	u27.12i ;24
INIA.04:	#TP131.1i, u59.12o ;21	INIA.11:	u54.14i ;25
INIA.04:	u96.12o ;22		
INIA.04:	u26.9i ;24	IntExternal':	u85.13i ;24
INIA.04:	u08.15i ;25	IntExternal':	u88.8i ;27
		IntExternal':	v03.11i ;36
		IntExternal':	J1.11 ;38
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NIA.07': #TP159.1i, u98.4i ;27	NIAX.10': v44.6i, u84.6i, v62.6o ;15
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paF.1: u99.12i ;10
paF.1: v51.3o ;19
paF.1: #TP107.1i, v26.12o ;20
paF.1: u56.12o ;21
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paF.2: u99.13i ;10
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paF.2: #TP108.1i, v26.13o ;20
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paS.0: u75.12o ;22
paS.0: u23.1i ;24
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paS.1: u99.4i ;10
paS.1: v51.16o ;19
paS.1: #TP104.1i, v11.13o ;20
paS.1: u37.13o ;21
paS.1: u75.13o ;22
paS.1: u23.2i ;24
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	pfX.0: u26.1i ;24
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pEnableSU: #TP113.1i, v12.14o ;20	pfX.1: #TP128.1i, u40.13o ;21
pEnableSU: u38.14o ;21	pfX.1: u78.13o ;22
pEnableSU: u76.14o ;22	pfX.1: u26.2i ;24
pEnableSU: u24.4i ;24	pfX.1: u10.15i ;25
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pEP: u76.12o ;22	pfX.2: u78.14o ;22
pEP: u24.1i ;24	pfX.2: u26.4i ;24
pEP: u06.2i ;25	pfX.2: u07.15i ;25
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pfS.1: #TP116.1i, v27.13o ;20	pfY.0: u39.12o ;21
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pfS.2: v52.7o ;19	pfY.1: u77.13o ;22
pfS.2: #TP117.1i, v27.14o ;20	pfY.1: u25.2i ;24
pfS.2: u57.14o ;21	pfY.1: u10.1i ;25
pfS.2: u94.14o ;22	
pfS.2: u24.11i ;24	pfY.2: u67.13i ;10
pfS.2: u09.2i ;25	pfY.2: v53.14o ;19
	pfY.2: #TP121.1i, v13.14o ;20
pfS.3: u68.13i ;10	pfY.2: u39.14o ;21
pfS.3: v52.9o ;19	pfY.2: u77.14o ;22
pfS.3: #TP118.1i, v27.15o ;20	pfY.2: u25.4i ;24
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 pfZ.0: #TP135.1i, u41.12o ;21
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 pfZ.1: #TP136.1i, u41.13o ;21
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 pfZ.1: u27.2i ;24
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 pfZ.2: v55.14o ;19
 pfZ.2: v15.14o ;20
 pfZ.2: #TP137.1i, u41.14o ;21
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 pfZ.3: v55.12o ;19
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 pfZ.3: #TP138.1i, u41.15o ;21
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 PIO.4: u51.11o ;36

 PIO.5: J2.06, u19.5o, v35.15i ;36
 PIO.5: u51.10o ;36

 PIO.6: J2.07, u19.7o, v35.13i ;36
 PIO.6: u51.9o ;36

 PIO.7: J2.08, u19.9o, v35.11i ;36
 PIO.7: u51.1i ;36

 pKR': #TP91.1i, u44.9o, v94.17i ;17

 pLink.0': #TP57.1i, u84.11o ;15
 pLink.0': u86.2i

 pLink.1': #TP58.1i, u84.9o, u86.5i ;15

 pLink.2': #TP59.1i, u84.7o ;15
 pLink.2': u86.10i

 pLink.3': #TP60.1i, u84.5o ;15
 pLink.3': u86.13i

 pMAR_': u31.2i, u99.1i, u72.6o ;10
 pMAR_': v94.3i

 pMAS': v96.9o, u85.4i ;32

 pMDS': v96.10o, u85.5i ;32

 pME: u31.8o, u64.7i ;17

 pmem: u67.7i ;10
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 pmem: v52.12o ;19

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pmem: u38.15o ;21
pmem: u76.15o ;22
pmem: u24.8i ;24
pmem: u11.2i ;25

pNIA.00': u48.4o, #TP29.1i ;14
pNIA.00': v76.3i ;15
pNIA.00': u47.3i ;26

pNIA.01': u48.7o, #TP30.1i ;14
pNIA.01': v76.4i ;15
pNIA.01': u47.6i ;26

pNIA.02': u48.9o, #TP31.1i ;14
pNIA.02': v76.7i ;15
pNIA.02': u47.11i ;26

pNIA.03': u48.12o, #TP32.1i ;14
pNIA.03': v76.8i ;15
pNIA.03': u47.14i ;26

pNIA.04': v43.4o, #TP33.1i ;14
pNIA.04': v76.13i ;15
pNIA.04': u82.3i ;26

pNIA.05': v43.7o, #TP34.1i ;14
pNIA.05': v76.14i ;15
pNIA.05': u82.6i ;26

pNIA.06': v43.9o, #TP35.1i ;14
pNIA.06': v76.17i ;15
pNIA.06': u82.11i ;26

pNIA.07': v43.12o, #TP36.1i ;14
pNIA.07': v76.18i ;15
pNIA.07': u82.14i ;26

pNIA.08': #TP38.1i, v91.8o ;14
pNIA.08': v62.3i ;15
pNIA.08': v31.3i ;26

pNIA.09': #TP40.1i, v92.8o ;14
pNIA.09': v62.4i ;15
pNIA.09': v31.6i ;26

pNIA.10': #TP42.1i, v90.8o ;14
pNIA.10': v62.7i ;15
pNIA.10': v31.11i ;26

pNIA.11': #TP44.1i, v93.8o ;14
pNIA.11': v62.8i ;15
pNIA.11': v31.14i ;26

PO.0': u65.18o, J2.21 ;36
PO.0: u65.2i, u83.2o, J2.20 ;36
PO.1': u65.16o, J2.23 ;36

PO.1: u65.4i, u83.5o, J2.22 ;36
PO.2': u65.14o, J2.25 ;36
PO.2: u65.6i, u83.6o, J2.24 ;36
PO.3': u65.12o, J2.27 ;36
PO.3: u65.8i, u83.9o, J2.26 ;36
PO.4': u65.3o, J2.29 ;36
PO.4: u65.17i, u83.12o, J2.28 ;36
PO.5': u65.5o, J2.31 ;36
PO.5: u65.15i, u83.15o, J2.30 ;36
PO.6': u65.7o, J2.33 ;36
PO.6: u65.13i, u83.16o, J2.32 ;36
PO.7': u19.19i, u65.9o, J2.35 ;36
PO.7': u04.14i ;36

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Pop: u17.6i, u17.2i, u17.15i ;06
Pop: u17.11i
Pop: u34.3o ;12

PopX': u15.9o ;11
PopX': u34.1i ;12
PopX': u16.6i ;17

PopZ': u18.10o, #TP181.1i ;11
PopZ': u34.2i ;12
PopZ': u16.5i ;17

PortOutput': u01.18o ;28
PortOutput': u19.1i, u65.11i ;36
PortOutput': u83.19o, J2.34

Port_': u32.13o ;11
Port_': u87.13i ;36

Port_: u87.12o, u69.5i ;36

pPC16': #TP192.1i, u44.11o ;17
pPC16': u64.13i

ppClk: v97.8i, v97.5i, E9, v97.2i ;18

prA.0: u91.4i ;05
prA.0: v17.3i ;10
prA.0: v50.18o ;19
prA.0: #TP95.1i, v25.12o ;20
prA.0: u36.12o ;21

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prA.0: u74.12o ;22
prA.0: u22.1i ;24
prA.0: u06.4i ;25

prA.1: u91.5i ;05
prA.1: v17.4i ;10
prA.1: v50.16o ;19
prA.1: #TP96.1i, v25.13o ;20
prA.1: u36.13o ;21
prA.1: u74.13o ;22
prA.1: u22.2i ;24
prA.1: u10.4i ;25

prA.2: u91.12i ;05
prA.2: v17.7i ;10
prA.2: v50.14o ;19
prA.2: #TP97.1i, v25.14o ;20
prA.2: u36.14o ;21
prA.2: u74.14o ;22
prA.2: u22.4i ;24
prA.2: u07.4i ;25

prA.3: u91.13i ;05
prA.3: v17.8i ;10
prA.3: v50.12o ;19
prA.3: #TP98.1i, v25.15o ;20
prA.3: u36.15o ;21
prA.3: u74.15o ;22
prA.3: u22.8i ;24
prA.3: u11.4i ;25

prB.0: v16.3i ;10
prB.0: v50.3o ;19
prB.0: #TP99.1i, v10.12o ;20
prB.0: u55.12o ;21
prB.0: u92.12o ;22
prB.0: u22.9i ;24
prB.0: u08.4i ;25

prB.1: v16.4i ;10
prB.1: v50.5o ;19
prB.1: #TP100.1i, v10.13o ;20
prB.1: u55.13o ;21
prB.1: u92.13o ;22
prB.1: u22.10i ;24
prB.1: u12.4i ;25

prB.2: v16.7i ;10
prB.2: v50.7o ;19
prB.2: #TP101.1i, v10.14o ;20
prB.2: u55.14o ;21
prB.2: u92.14o ;22
prB.2: u22.11i ;24
prB.2: u09.4i ;25

prB.3: v16.8i ;10
prB.3: v50.9o ;19
prB.3: #TP102.1i, v10.15o ;20
prB.3: u55.15o ;21

prB.3: u92.15o ;22
prB.3: u22.12i ;24
prB.3: u54.4i ;25

pRet': u35.3o, u86.12i, u86.9i ;15
pRet': u86.4i, u86.1i

pSDS: v00.12o, u85.12i ;32

pSE: #TP87.1i, u16.10o, u64.8i ;17

Pt.0: u49.12o, E64 ;16
Pt.0: v85.17i ;16

Pt.1: u49.15o, E164 ;16
Pt.1: v85.15i ;16

Pt.2: u49.16o, E65 ;16
Pt.2: v85.13i ;16

Pt=Emu: u49.19o, #TP69.1i ;16
Pt=Emu: v85.11i ;16
Pt=Emu: u31.10i ;17

pTC.0: v91.1i, v05.3o, #TP37.1i ;14
pTC.0: v62.13i ;15

pTC.1: v92.1i, v05.6o, #TP39.1i ;14
pTC.1: v62.14i ;15

pTC.2: v90.1i, v20.12o, #TP41.1i ;14
pTC.2: v62.17i ;15

pTC.3: v93.1i, v20.6o, #TP43.1i ;14
pTC.3: v62.18i ;15

Push: u17.7i ;06
Push: u53.6o ;12
Push: u16.7i ;17

PushX': u15.7o ;11
PushX': u53.5i ;12

PushY': v57.12o ;11
PushY': u53.3i ;12

PushZ': u18.9o ;11
PushZ': u53.4i ;12

pWaitClk': v97.4o, v21.9i ;18
pWaitClk': v04.5i, v04.10i ;18
pWaitClk': v04.13i, v22.1i, v04.2i
pWaitClk': u46.13i ;38

Q.00: u81.16i ;03
Q.00: u63.10i, u63.11i ;04
Q.00: u62.3o, #TP5.1i ;04
Q.00: u88.1i ;27

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Q.03:	u81.21o, u80.16i ;03	rB.1:	v09.19i ;03
Q.07:	v08.16i ;03	rB.1:	u80.19i ;03
Q.07:	u80.21o ;03	rB.1:	v47.14i, v48.14i ;06
		rB.1:	v16.5o ;10
Q.11:	v08.21o, v09.16i ;03	rB.2:	u81.18i ;03
Q.15:	v09.21o ;03	rB.2:	v08.18i ;03
Q.15:	u62.6o, #TP6.1i ;04	rB.2:	v09.18i ;03
Q.15:	u88.2i ;27	rB.2:	u80.18i ;03
		rB.2:	v47.15i, v48.15i ;06
R.00:	u81.8i ;03	rB.2:	v16.6o ;10
R.00:	u63.13i ;04	rB.3:	u81.17i ;03
R.00:	u63.7o, #TP3.1i ;04	rB.3:	v08.17i ;03
		rB.3:	v09.17i ;03
R.03:	u81.9o, u80.8i ;03	rB.3:	u80.17i ;03
		rB.3:	v47.1i, v48.1i ;06
R.07:	v08.8i ;03	rB.3:	v16.9o ;10
R.07:	u80.9o ;03		
		ReadCS.0:	v71.7o ;19
R.11:	v08.9o, v09.8i ;03	ReadCS.0:	u06.9i ;25
		ReadCS.0:	u10.9i ;25
R.15:	v09.9o ;03	ReadCS.0:	u11.9i ;25
R.15:	u62.2i, u63.9o, #TP4.1i ;04	ReadCS.0:	u07.9i ;25
R.15:	u63.3i ;04	ReadCS.0:	u08.9i ;25
		ReadCS.0:	u12.9i ;25
rA.0:	u81.1i ;03	ReadCS.0:	u54.9i ;25
rA.0:	u80.1i ;03	ReadCS.0:	u09.9i ;25
rA.0:	v09.1i ;03		
rA.0:	v08.1i ;03	ReadCS.1:	v71.9o ;19
rA.0:	v17.2o ;10	ReadCS.1:	u06.10i ;25
		ReadCS.1:	u10.10i ;25
rA.1:	u81.2i ;03	ReadCS.1:	u11.10i ;25
rA.1:	u80.2i ;03	ReadCS.1:	u07.10i ;25
rA.1:	v09.2i ;03	ReadCS.1:	u08.10i ;25
rA.1:	v08.2i ;03	ReadCS.1:	u12.10i ;25
rA.1:	v17.5o ;10	ReadCS.1:	u54.10i ;25
		ReadCS.1:	u09.10i ;25
rA.2:	u81.3i ;03		
rA.2:	u80.3i ;03	ReadCS.2:	v73.9o ;19
rA.2:	v09.3i ;03	ReadCS.2:	u06.11i ;25
rA.2:	v08.3i ;03	ReadCS.2:	u10.11i ;25
rA.2:	v17.6o ;10	ReadCS.2:	u11.11i ;25
		ReadCS.2:	u07.11i ;25
rA.3:	u81.4i ;03	ReadCS.2:	u08.11i ;25
rA.3:	u80.4i ;03	ReadCS.2:	u12.11i ;25
rA.3:	v09.4i ;03	ReadCS.2:	u54.11i ;25
rA.3:	v08.4i ;03	ReadCS.2:	u09.11i ;25
rA.3:	v17.9o ;10		
		ReadCSEn':	u12.7i, u11.7i, u10.7i ;25
rB.0:	u81.20i ;03	ReadCSEn':	u09.7i, u08.7i, u07.7i
rB.0:	v08.20i ;03	ReadCSEn':	u06.7i, E188, u54.7i
rB.0:	v09.20i ;03		
rB.0:	u80.20i ;03	RefillIntc2:	u61.13o, #TP18.1i ;07
rB.0:	v47.13i, v48.13i ;06	RefillIntc2:	u48.1i ;14
rB.0:	v16.2o ;10		
		RefReq':	E88, u73.6i ;16
rB.1:	u81.19i ;03	RefReq':	u88.3i ;27
rB.1:	v08.19i ;03		

Refresh: u50.8o, E16 ;12	stackP.0: u17.12i, v66.2o, v60.17i ;06
	stackP.0: u16.1i ;17
RefreshY': v57.13o ;11	
RefreshY': u50.10i ;12	stackP.1: v66.7o, u17.14i, v60.15i ;06
	stackP.1: u16.2i ;17
RefreshZ': u18.15o ;11	
RefreshZ': u50.9i ;12	stackP.2: v66.10o, u17.3i, v60.13i ;06
	stackP.2: u16.3i ;17
RH_': u15.14o ;11	
RH_': v21.11i ;18	stackP.3: v66.15o, u17.5i, v60.11i ;06
	stackP.3: u16.4i ;17
RH_: v21.10o, v04.9i ;18	
SDS': v01.29i ;30	stackP_': v66.1i ;06
SDS': u85.11o ;32	stackP_': u52.10o ;11
	SUA.0: u91.2o ;05
SelectIB0': v37.1i ;07	SUA.0: v42.7i ;05
SelectIB0': u61.14o, #TP19.1i ;07	SUA.0: v69.7i ;05
	SUA.0: v41.7i ;05
SelectIB1': v78.1i ;07	SUA.0: v68.7i ;05
SelectIB1': u43.14o, #TP22.1i ;07	
	SUA.1: u91.7o ;05
SelFP': v24.19i, v32.6o, v06.19i ;38	SUA.1: v42.6i ;05
SelFP': J1.29 ;38	SUA.1: v69.6i ;05
	SUA.1: v41.6i ;05
SFLG': u64.19o ;30	SUA.1: v68.6i ;05
SFLG': v00.6i ;32	
	SUA.2: u91.10o ;05
sh: u81.6i ;03	SUA.2: v42.5i ;05
sh: u80.6i ;03	SUA.2: v69.5i ;05
sh: v09.6i ;03	SUA.2: v41.5i ;05
sh: v08.6i ;03	SUA.2: v68.5i ;05
sh: u53.12o ;12	
	SUA.3: u91.15o ;05
Shift': u63.14i ;04	SUA.3: v42.21i ;05
Shift': u15.13o ;11	SUA.3: v69.21i ;05
Shift': u53.13i ;12	SUA.3: v41.21i ;05
	SUA.3: v68.21i ;05
SP.0: v01.2o, v34.18i ;30	
	SUA.4: u89.2o ;05
SP.1: v01.3o, v34.17i ;30	SUA.4: v42.1i ;05
	SUA.4: v69.1i ;05
SP.2: v01.4o, v34.14i ;30	SUA.4: v41.1i ;05
	SUA.4: v68.1i ;05
SP.3: v01.5o, v34.13i ;30	SUA.4: J1.16 ;38
	SUA.4: u21.41o ;40
SP.4: v01.39o, v34.8i ;30	SUA.4: u20.41o ;40
SP.5: v01.38o, v34.7i ;30	SUA.5: u89.7o ;05
	SUA.5: v42.2i ;05
SP.6: v01.37o, v34.4i ;30	SUA.5: v69.2i ;05
	SUA.5: v41.2i ;05
SP.7: v01.36o, v34.3i ;30	SUA.5: v68.2i ;05
	SUA.5: J1.17 ;38
SpActive: u69.9i ;30	SUA.5: u21.43o ;40
SpActive: u85.10o ;32	SUA.5: u20.43o ;40
StackErr: u64.9o, u45.1i ;17	SUA.6: u89.10o ;05
	SUA.6: v42.3i ;05

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SUA.6: v69.3i ;05
 SUA.6: v41.3i ;05
 SUA.6: v68.3i ;05
 SUA.6: J1.18 ;38
 SUA.6: u21.44o ;40
 SUA.6: u20.44o ;40

 SUA.7: u89.15o ;05
 SUA.7: v42.4i ;05
 SUA.7: v69.4i ;05
 SUA.7: v41.4i ;05
 SUA.7: v68.4i ;05
 SUA.7: J1.19 ;38
 SUA.7: u21.45o ;40
 SUA.7: u20.45o ;40

 Swc2': #TP75.1i, v63.11o, v02.4i ;16

 Swc2: #TP74.1i, v63.9o, v02.3i ;16
 Swc2: u82.1i, u47.1i, v31.1i ;26

 Swc3': v91.13i, v91.12i ;14
 Swc3': v92.13i, v92.12i ;14
 Swc3': v93.13i, v93.12i ;14
 Swc3': v90.13i, v90.12i ;14
 Swc3': v02.5o ;16

 Swc3: v91.9i ;14
 Swc3: v92.9i ;14
 Swc3: v93.9i ;14
 Swc3: v90.9i ;14
 Swc3: v02.2o ;16
 Swc3: u01.4i ;28

 SwTAddr': v73.1i, v72.1i, E196 ;19
 SwTAddr': v73.19i

 SwTAddr: v76.1i ;15
 SwTAddr: v62.1i ;15
 SwTAddr: u73.8i ;16
 SwTAddr: v97.12i ;16
 SwTAddr: E96 ;19

 TC.0: v91.10i ;14
 TC.0: v94.6o ;15

 TC.1: v92.10i ;14
 TC.1: v94.9o ;15

 TC.2: v90.10i ;14
 TC.2: v94.12o ;15

 TC.3: v93.10i ;14
 TC.3: v94.15o ;15

 TCWaitc1': v94.19o ;18
 TCWaitc1': u31.12i ;18

 TCX.0: v62.12o, v45.12i ;15

 TCX.1: v62.15o, v45.10i ;15
 TCX.2: v62.16o, v45.6i ;15
 TCX.3: v62.19o, v45.4i ;15

 TCY.0: v45.11o, #TP61.1i, v94.7i ;15
 TCY.1: v45.9o, #TP62.1i, v94.8i ;15
 TCY.2: v45.7o, #TP63.1i, v94.13i ;15
 TCY.3: #TP64.1i, v45.5o, v94.14i ;15

 TPC.00': v74.11o, #TP45.1i ;15
 TPC.00': u08.13i ;25
 TPC.00': u47.4i ;26

 TPC.01': v74.9o, #TP46.1i ;15
 TPC.01': u12.13i ;25
 TPC.01': u47.5i ;26

 TPC.02': v74.7o, #TP47.1i ;15
 TPC.02': u09.13i ;25
 TPC.02': u47.12i ;26

 TPC.03': v74.5o, #TP48.1i ;15
 TPC.03': u54.13i ;25
 TPC.03': u47.13i ;26

 TPC.04': v75.11o, #TP49.1i ;15
 TPC.04': u06.12i ;25
 TPC.04': u82.4i ;26

 TPC.05': v75.9o, #TP50.1i ;15
 TPC.05': u10.12i ;25
 TPC.05': u82.5i ;26

 TPC.06': v75.7o, #TP51.1i ;15
 TPC.06': u07.12i ;25
 TPC.06': u82.12i ;26

 TPC.07': v75.5o, #TP52.1i ;15
 TPC.07': u11.12i ;25
 TPC.07': u82.13i ;26

 TPC.08': v44.11o, #TP53.1i ;15
 TPC.08': u08.12i ;25
 TPC.08': v31.4i ;26

 TPC.09': v44.9o, #TP54.1i ;15
 TPC.09': u12.12i ;25
 TPC.09': v31.5i ;26

 TPC.10': v44.7o, #TP55.1i ;15
 TPC.10': u09.12i ;25
 TPC.10': v31.12i ;26

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TPC.11': v44.5o, #TP56.1i ;15
TPC.11': u54.12i ;25
TPC.11': v31.13i ;26

TTLHigh-a: u68.1i ;10
TTLHigh-a: u99.14i, u99.11i ;10
TTLHigh-a: u99.6i, u99.3i
TTLHigh-a: u48.6i ;14
TTLHigh-a: u88.5i ;27
TTLHigh-a: v95.11i, v95.3i ;38

TTLHigh-b: u88.6i ;27
TTLHigh-b: v01.11i ;30

TTLHigh-c: u88.7i ;27
TTLHigh-c: u14.13i ;31
TTLHigh-c: u14.4i, u14.1i ;32

VCC: v08.10i, u80.10i, u81.10i ;03
VCC: v09.10i
VCC: u88.15o, u88.14o, u88.13o ;27
VCC: u88.12o, u88.11o, u88.10o
VCC: u88.9o, u88.16o
VCC: #R2.1o ;27
VCC: #R1.1o ;27
VCC: u01.20o ;28
VCC: v01.40i ;30
VCC: f01.1i ;36
VCC: u51.16o ;36
VCC: #C28.2i, #C93.2i, #C51.2i ;37
VCC: #C90.2i, #C77.2i, #C63.2i
VCC: #C30.2i, #C15.2i, #C14.2i
VCC: #C13.2i, #C146.2i, #C132.2i
VCC: #C144.2i, #C143.2i, #C142.2i
VCC: #C4.2i, #C5.2i, #C7.2i
VCC: #C31.2i, #C6.2i, #C8.2i
VCC: #C32.2i, #C29.2i, #C10.2i
VCC: #C16.2i, #C18.2i, #C19.2i
VCC: #C20.2i, #C50.2i, #C9.2i
VCC: #C119.2i, #C118.2i, #C117.2i
VCC: #C116.2i, #C115.2i, #C114.2i
VCC: #C53.2i, #C52.2i, #C44.2i
VCC: #C46.2i, #C75.2i, #C73.2i
VCC: #C72.2i, #C89.2i, #C3.2i
VCC: #C68.2i, #C67.2i, #C66.2i
VCC: #C86.2i, #C85.2i, #C84.2i
VCC: #C83.2i, #C82.2i, #C81.2i
VCC: #C104.2i, #C103.2i, #C102.2i
VCC: #C101.2i, #C100.2i, #C99.2i
VCC: #C42.2i, #C41.2i, #C40.2i
VCC: #C39.2i, #C38.2i, #C37.2i
VCC: #C59.2i, #C58.2i, #C57.2i
VCC: #C56.2i, #C55.2i, #C54.2i
VCC: #C71.2i, #C70.2i, #C69.2i
VCC: #C123.2i, #C45.2i, #C95.2i
VCC: #C76.2i, #C97.2i, #C91.2i
VCC: #C92.2i, #C105.2i, #C78.2i
VCC: #C27.2i, #C26.2i, #C25.2i
VCC: #C24.2i, #C23.2i, #C22.2i

VCC: #C147.2i, #C141.2i, #C148.2i
VCC: #C150.2i, #C152.2i, #C151.2i
VCC: #C137.2i, #C136.2i, #C135.2i
VCC: #C138.2i, #C139.2i, #C140.2i
VCC: #C49.2i, #C125.2i, #C126.2i
VCC: u21.14i ;40
VCC: u21.58o ;40
VCC: u21.37o ;40
VCC: u20.37o ;40
VCC: u20.58o ;40
VCC: u20.14i ;40
VCC: #C64.2i, #C1.2i, #C62.2i ;41
VCC: #C60.2i, #C111.2i, #C36.2i
VCC: #C33.2i, #C35.2i, #C34.2i
VCC: #C149.2i, #C21.2i, #C17.2i
VCC: #C48.2i, #C107.2i, #C74.2i
VCC: #C113.2i, #C98.2i, #C153.2i
VCC: #C43.2i, #C80.2i, #C79.2i
VCC: #C96.2i, #C106.2i, #C94.2i
VCC: #C87.2i, #C88.2i, #C61.2i
VCC: #C65.2i, #C47.2i, #C145.2i
VCC: #C133.2i, #C129.2i, #C130.2i
VCC: #C127.2i, #C134.2i, #C122.2i
VCC: #C110.2i, #C120.2i, #C121.2i
VCC: #C112.2i, #C124.2i, #C131.2i
VCC: #C108.2i, #C128.2i, #C109.2i
VCC: #C2.2i, #C157.2i, #C158.2i
VCC: #C154.2i, #C155.2i
VCC: u42.20o, u02.16o ;42
VCC: #C11.1o, #C12.1o, f02.1i ;42

Wait: v38.3i ;07
Wait: v63.5i ;16
Wait: v97.6i, u35.4i, v20.8o, E17 ;18
Wait: v86.15i ;28

Waitc1': v02.17i, u70.8o, v20.11i ;18
Waitc2': v02.18i, v02.16o, v20.10i ;18
Waitc3': v94.18i, v02.19o, v20.9i ;18

WaitClk: u81.15i, u80.15i ;03
WaitClk: v08.15i, v09.15i ;03
WaitClk: v66.9i ;06
WaitClk: v21.8o ;18
WaitClk: v19.2i ;26
WaitClk: u64.11i ;29
WaitClk: v33.11i, u85.9i ;32

WaitPin': v86.5o, u01.3i ;28

WPort: v40.11i, u83.11i, u69.6o ;36

WrIBFront: v65.11i ;07
WrIBFront: v04.11o ;18

WriteIB: v37.11i, v78.11i ;07
WriteIB: v97.10o ;18

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WriteLink': u84.3i ;15
 WriteLink': v04.6o ;18

 WriteRH': v48.3i, v47.3i ;06
 WriteRH': v04.8o ;18

 WriteSU': v42.20i ;05
 WriteSU': v69.20i ;05
 WriteSU': v41.20i ;05
 WriteSU': v68.20i ;05
 WriteSU': v04.3o ;18

 WriteTC': v45.3i ;15
 WriteTC': v05.8o ;18

 WriteTPC': v75.3i, v74.3i, v44.3i ;15
 WriteTPC': v22.8o ;18

 WrTPCHigh': E91, v72.11i ;19

 WrTPCLow: v22.9i, E191, v22.10i ;18

 X.00: E41, u81.22i ;03
 X.00: v84.18o ;05
 X.00: v37.3i ;07
 X.00: v39.3o ;08
 X.00: v88.15o ;08
 X.00: v49.14i ;13
 X.00: v36.18o ;36
 X.00: v06.2i ;38

 X.01: E141, u81.23i ;03
 X.01: v84.16o ;05
 X.01: v37.4i ;07
 X.01: v39.5o ;08
 X.01: v82.15o ;08
 X.01: v36.16o ;36
 X.01: v06.3i ;38

 X.02: E42, u81.24i ;03
 X.02: v84.14o ;05
 X.02: v37.7i ;07
 X.02: v39.7o ;08
 X.02: v81.15o ;08
 X.02: v36.14o ;36
 X.02: v06.4i ;38

 X.03: E142, u81.25i ;03
 X.03: v84.12o ;05
 X.03: v37.8i ;07
 X.03: v39.9o ;08
 X.03: v80.15o ;08
 X.03: v36.12o ;36
 X.03: v06.5i ;38

 X.04: E43, u80.22i ;03
 X.04: v84.3o ;05
 X.04: v37.13i ;07

X.04: v61.3o ;08
 X.04: v88.14o ;08
 X.04: v23.14i ;13
 X.04: v36.3o ;36
 X.04: v06.6i ;38

 X.05: E143, u80.23i ;03
 X.05: v84.5o ;05
 X.05: v37.14i ;07
 X.05: v61.5o ;08
 X.05: v82.14o ;08
 X.05: v36.5o ;36
 X.05: v06.7i ;38

 X.06: E44, u80.24i ;03
 X.06: v84.7o ;05
 X.06: v37.17i ;07
 X.06: v61.7o ;08
 X.06: v81.14o ;08
 X.06: v36.7o ;36
 X.06: v06.8i ;38

 X.07: E144, u80.25i ;03
 X.07: v84.9o ;05
 X.07: v37.18i ;07
 X.07: v61.9o ;08
 X.07: v80.14o ;08
 X.07: v36.9o ;36
 X.07: v06.9i ;38

 X.08: E45, v08.22i ;03
 X.08: v83.18o ;05
 X.08: v48.12i ;06
 X.08: v39.18o ;06
 X.08: v78.3i ;07
 X.08: v88.12o ;08
 X.08: v59.4o ;09
 X.08: v46.4o ;09
 X.08: v60.18o ;09
 X.08: v23.13i ;13
 X.08: v34.2o ;30
 X.08: v35.18o ;36
 X.08: v03.18o ;36
 X.08: v24.2i ;38

 X.09: E145, v08.23i ;03
 X.09: v83.16o ;05
 X.09: v48.10i ;06
 X.09: v39.16o ;06
 X.09: v78.4i ;07
 X.09: v82.12o ;08
 X.09: v59.7o ;09
 X.09: v46.7o ;09
 X.09: v60.16o ;09
 X.09: v23.15i ;13
 X.09: v34.5o ;30
 X.09: v35.16o ;36
 X.09: v03.16o ;36
 X.09: v24.3i ;38

X.10:	E46, v08.24i	;03	X.14:	E48, v09.24i	;03
X.10:	v83.14o	;05	X.14:	v83.7o	;05
X.10:	v39.14o	;06	X.14:	v60.7o, v61.14o	;06
X.10:	v48.6i	;06	X.14:	v47.6i	;06
X.10:	v78.7i	;07	X.14:	v78.17i	;07
X.10:	v81.12o	;08	X.14:	v81.11o	;08
X.10:	v59.9o	;09	X.14:	v64.9o	;09
X.10:	v46.9o	;09	X.14:	v85.14o	;09
X.10:	v60.14o	;09	X.14:	v23.4i	;13
X.10:	v49.15i	;13	X.14:	v34.16o	;30
X.10:	v34.6o	;30	X.14:	v35.7o	;36
X.10:	v35.14o	;36	X.14:	v03.7o	;36
X.10:	v03.14o	;36	X.14:	v24.8i	;38
X.10:	v24.4i	;38	X.15:	E148, v09.25i	;03
X.11:	E146, v08.25i	;03	X.15:	v83.9o	;05
X.11:	v83.12o	;05	X.15:	v60.9o, v61.12o	;06
X.11:	v39.12o	;06	X.15:	v47.4i	;06
X.11:	v48.4i	;06	X.15:	v78.18i	;07
X.11:	v78.8i	;07	X.15:	v80.11o	;08
X.11:	v80.12o	;08	X.15:	v64.12o	;09
X.11:	v59.12o	;09	X.15:	v85.12o	;09
X.11:	v46.12o	;09	X.15:	v49.4i	;13
X.11:	v60.12o	;09	X.15:	v49.13i	;13
X.11:	v07.13i	;13	X.15:	v34.19o	;30
X.11:	v34.9o	;30	X.15:	v35.9o	;36
X.11:	v35.12o	;36	X.15:	v03.9o	;36
X.11:	v03.12o	;36	X.15:	v24.9i	;38
X.11:	v24.5i	;38	XBus_IB':	v38.2i	;07
X.12:	E47, v09.22i	;03	XBus_IB':	v59.15i	;09
X.12:	v83.3o	;05	XBus_IB':	v64.15i	;09
X.12:	v60.3o, v61.18o	;06	XBus_IB':	u33.6o	;12
X.12:	v47.12i	;06	XBus_SU':	u87.11i, u72.3o, v83.1i	;05
X.12:	v78.13i	;07	XBus_SU':	v84.1i	
X.12:	v88.11o	;08	XBus_SU:	u87.10o, v83.19i, v84.19i	;05
X.12:	v64.4o	;09	XByte':	u53.8o, u46.10i	;12
X.12:	v85.18o	;09	Xhigh_0:	v39.19i, v61.19i	;08
X.12:	v77.2i	;13	Xhigh_0:	u46.8o	;12
X.12:	v34.12o	;30	Y.00:	u81.39o, E49	;03
X.12:	v35.3o	;36	Y.00:	v42.15i	;05
X.12:	v03.3o	;36	Y.00:	v88.4i	;08
X.12:	v24.6i	;38	Y.00:	u83.3i	;36
X.13:	E147, v09.23i	;03	Y.01:	u81.38o, E149	;03
X.13:	v83.5o	;05	Y.01:	v42.13i	;05
X.13:	v60.5o, v61.16o	;06	Y.01:	v82.4i	;08
X.13:	v47.10i	;06	Y.01:	u83.4i	;36
X.13:	v78.14i	;07	Y.02:	u81.37o, E52	;03
X.13:	v82.11o	;08	Y.02:	v42.11i	;05
X.13:	v64.7o	;09	Y.02:	v81.4i	;08
X.13:	v85.16o	;09	Y.02:	u83.7i	;36
X.13:	v77.5i	;13			
X.13:	v34.15o	;30			
X.13:	v35.5o	;36			
X.13:	v03.5o	;36			
X.13:	v24.7i	;38			

Y.03:	u81.36o, E152	;03	Y.12:	v68.15i	;05
Y.03:	v42.9i	;05	Y.12:	v66.3i	;06
Y.03:	v80.4i	;08	Y.12:	v88.3i	;08
Y.03:	u83.8i	;36	Y.12:	v88.7i	;08
			Y.12:	v77.3i	;13
Y.04:	u80.39o, E53	;03	Y.12:	v19.6i	;26
Y.04:	v69.15i	;05	Y.12:	v56.13i	;30
Y.04:	v88.1i	;08	Y.12:	v40.13i	;36
Y.04:	v88.5i	;08			
Y.04:	u83.13i	;36	Y.13:	v09.38o, E157	;03
			Y.13:	v68.13i	;05
Y.05:	u80.38o, E153	;03	Y.13:	v58.5i	;05
Y.05:	v69.13i	;05	Y.13:	v66.6i	;06
Y.05:	v82.1i	;08	Y.13:	v82.3i	;08
Y.05:	v82.5i	;08	Y.13:	v82.7i	;08
Y.05:	u83.14i	;36	Y.13:	v77.6i	;13
			Y.13:	v19.5i	;26
Y.06:	u80.37o, E54	;03	Y.13:	v56.14i	;30
Y.06:	v69.11i	;05	Y.13:	v40.14i	;36
Y.06:	v81.1i	;08			
Y.06:	v81.5i	;08	Y.14:	v09.37o, E58	;03
Y.06:	u83.17i	;36	Y.14:	v68.11i	;05
			Y.14:	v58.11i	;05
Y.07:	u80.36o, E154	;03	Y.14:	v66.11i	;06
Y.07:	v69.9i	;05	Y.14:	v81.3i	;08
Y.07:	v80.1i	;08	Y.14:	v81.7i	;08
Y.07:	v80.5i	;08	Y.14:	v23.3i	;13
Y.07:	u83.18i	;36	Y.14:	v19.4i	;26
			Y.14:	v56.17i	;30
Y.08:	v08.39o, E55	;03	Y.14:	v40.17i	;36
Y.08:	v41.15i	;05			
Y.08:	v88.2i	;08	Y.15:	v09.36o, E158	;03
Y.08:	v88.6i	;08	Y.15:	v68.9i	;05
Y.08:	v56.3i	;30	Y.15:	v58.14i	;05
Y.08:	v40.3i	;36	Y.15:	v66.14i	;06
			Y.15:	v80.3i	;08
Y.09:	v08.38o, E155	;03	Y.15:	v80.7i	;08
Y.09:	v41.13i	;05	Y.15:	v49.3i	;13
Y.09:	v82.2i	;08	Y.15:	v19.3i	;26
Y.09:	v82.6i	;08	Y.15:	v56.18i	;30
Y.09:	v56.4i	;30	Y.15:	v40.18i	;36
Y.09:	v40.4i	;36			
			YH.0:	v39.2i, v48.11o, E59	;06
Y.10:	v08.37o, E56	;03	YH.0:	v22.4i	;18
Y.10:	v41.11i	;05			
Y.10:	v81.2i	;08	YH.1:	v39.4i, v48.9o, E159	;06
Y.10:	v81.6i	;08			
Y.10:	v56.7i	;30	YH.2:	v39.6i, v48.7o, E61	;06
Y.10:	v40.7i	;36			
			YH.3:	v39.8i, v48.5o, E161	;06
Y.11:	v08.36o, E156	;03	YH.3:	v22.3i	;18
Y.11:	v41.9i	;05	YH.3:	u70.1i	;18
Y.11:	v80.2i	;08			
Y.11:	v80.6i	;08	YH.4:	v61.2i, v47.11o, E62	;06
Y.11:	v56.8i	;30	YH.4:	v38.10i	;18
Y.11:	v40.8i	;36			
			YH.5:	v61.4i, v47.9o, E162	;06
Y.12:	v09.39o, E57	;03	YH.5:	v38.9i	;18
Y.12:	v58.2i	;05			

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YH.6: v61.6i, v47.7o, E63 ;06
 YH.6: v38.8i ;18
 YH.7: v61.8i, v47.5o, E163 ;06
 YH.7: v38.11i ;18
 YIODisp.0: E39, v23.1i ;13
 YIODisp.1: E139, v49.1i ;13
 _DES': u18.11o ;11
 _DES': u46.9i ;12
 _DES': v34.1i ;30
 _DES': v00.7i ;32
 _EIData': v79.15o, E31 ;11
 _EIStatus': v79.14o, E131 ;11
 _ErrIBStkp': v60.19i ;06
 _ErrIBStkp': v60.1i ;09
 _ErrIBStkp': v87.13o ;11
 _FP': v24.1i ;38
 _FP': v06.1i ;38
 _FP': u46.6o ;38
 _ib': u61.16i, u43.16i ;07
 _ib': v87.10o, #TP182.1i ;11
 _ibHigh': v64.1i ;09
 _ibHigh': v87.7o ;11
 _IOPIData': v87.15o, E34 ;11
 _IOPStatus': v87.14o, E134 ;11
 _KIData': v79.13o, E32 ;11
 _KStatus': v79.12o, E132 ;11
 _KTest': v79.9o, E33 ;11
 _MStatus': v79.10o, E114 ;11
 _Port': u32.12o ;11
 _Port': v36.1i, v36.19i ;36
 _Port': u04.15i ;36
 _PortA': u04.12o ;36
 _PortA': v35.1i, v35.19i ;36
 _PortB': u04.11o ;36
 _PortB': v03.1i, v03.19i ;36
 _RH': v39.1i, v61.1i ;06
 _RH': v87.12o ;11
 _TIData': v89.9o, E127 ;11

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	TITLE SCHEMATIC, CPE-FP			SHEET 75 OF	