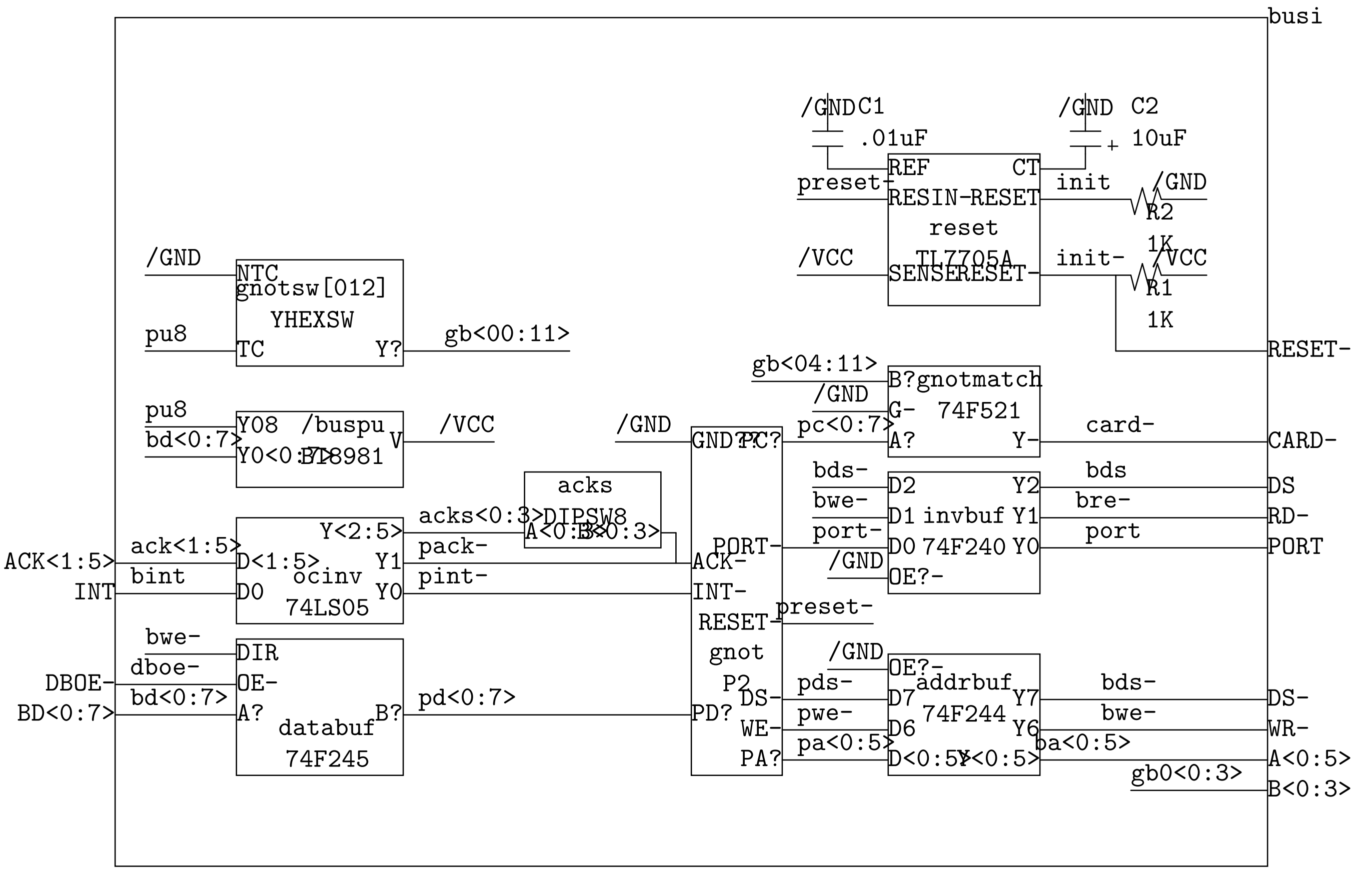
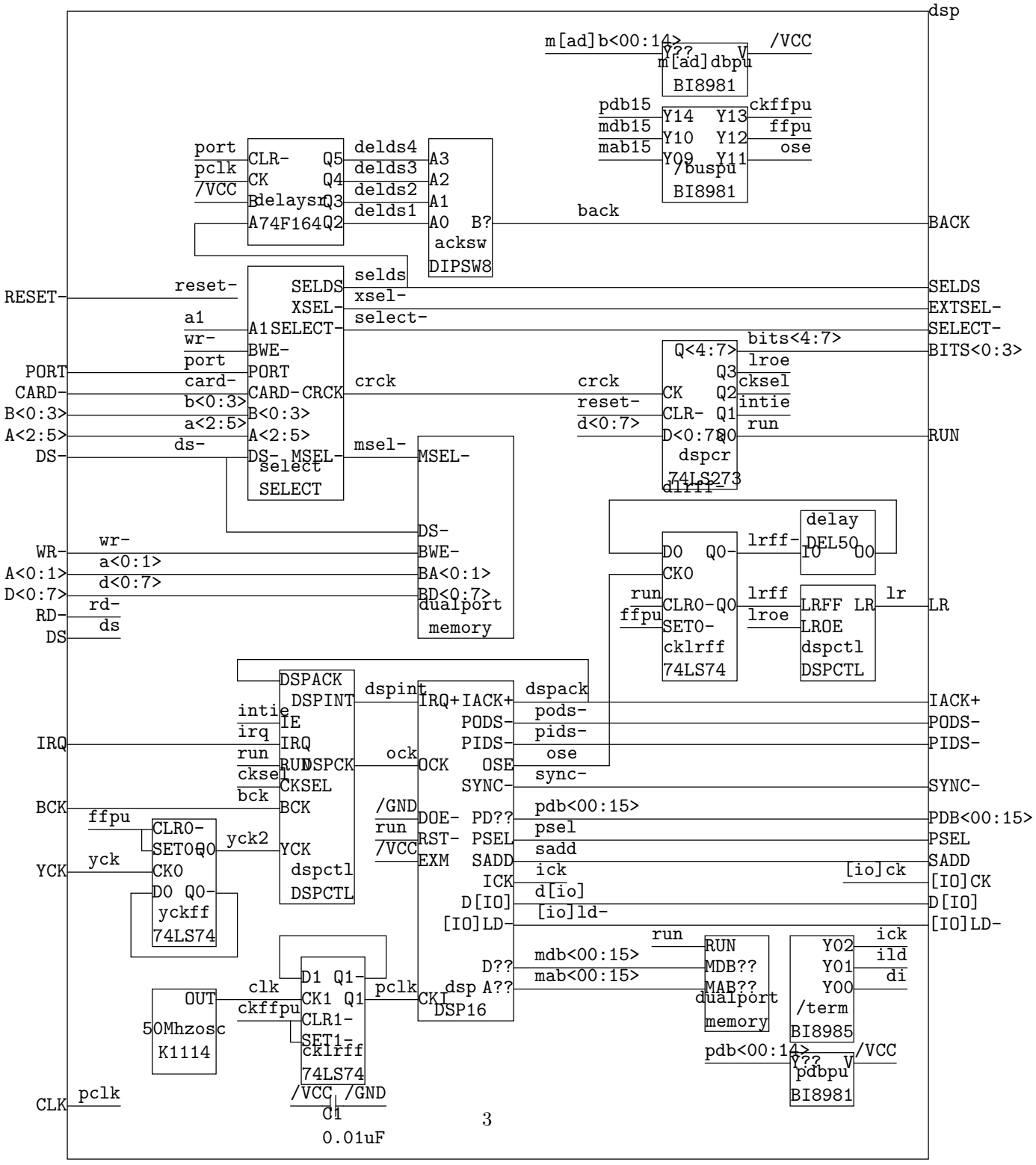
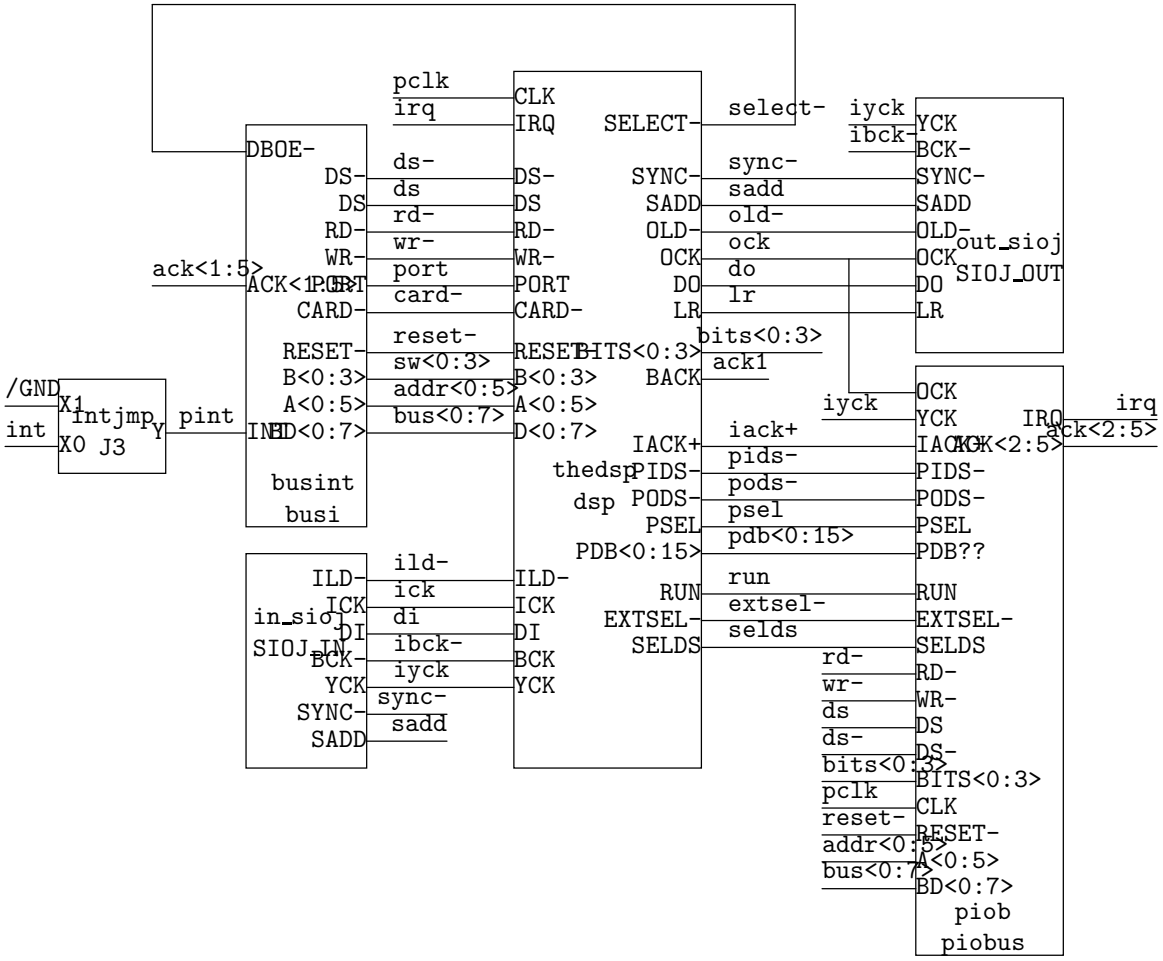
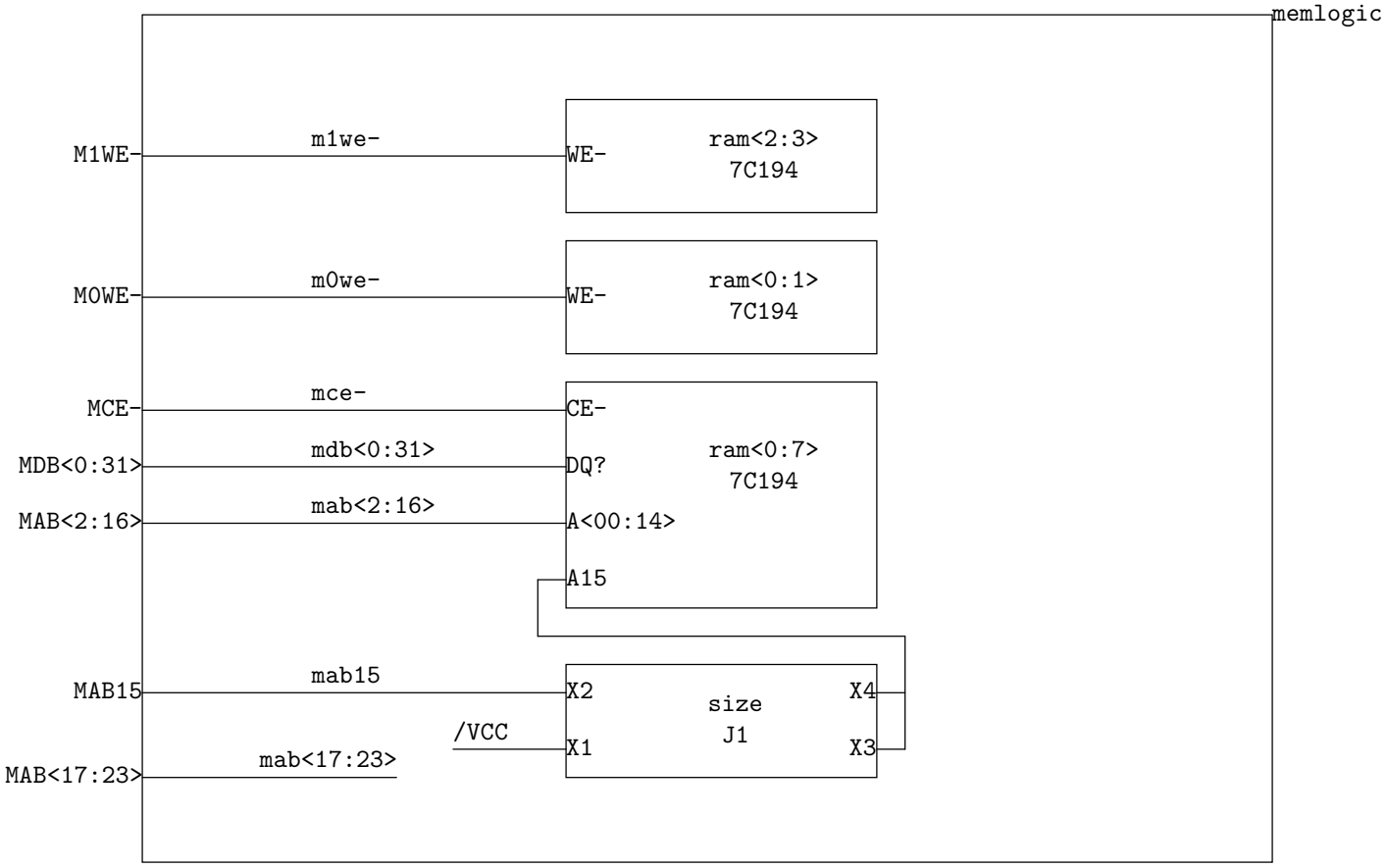
I also designed an array for the DSP-32C – I didn't build this. The schematic sheets are:

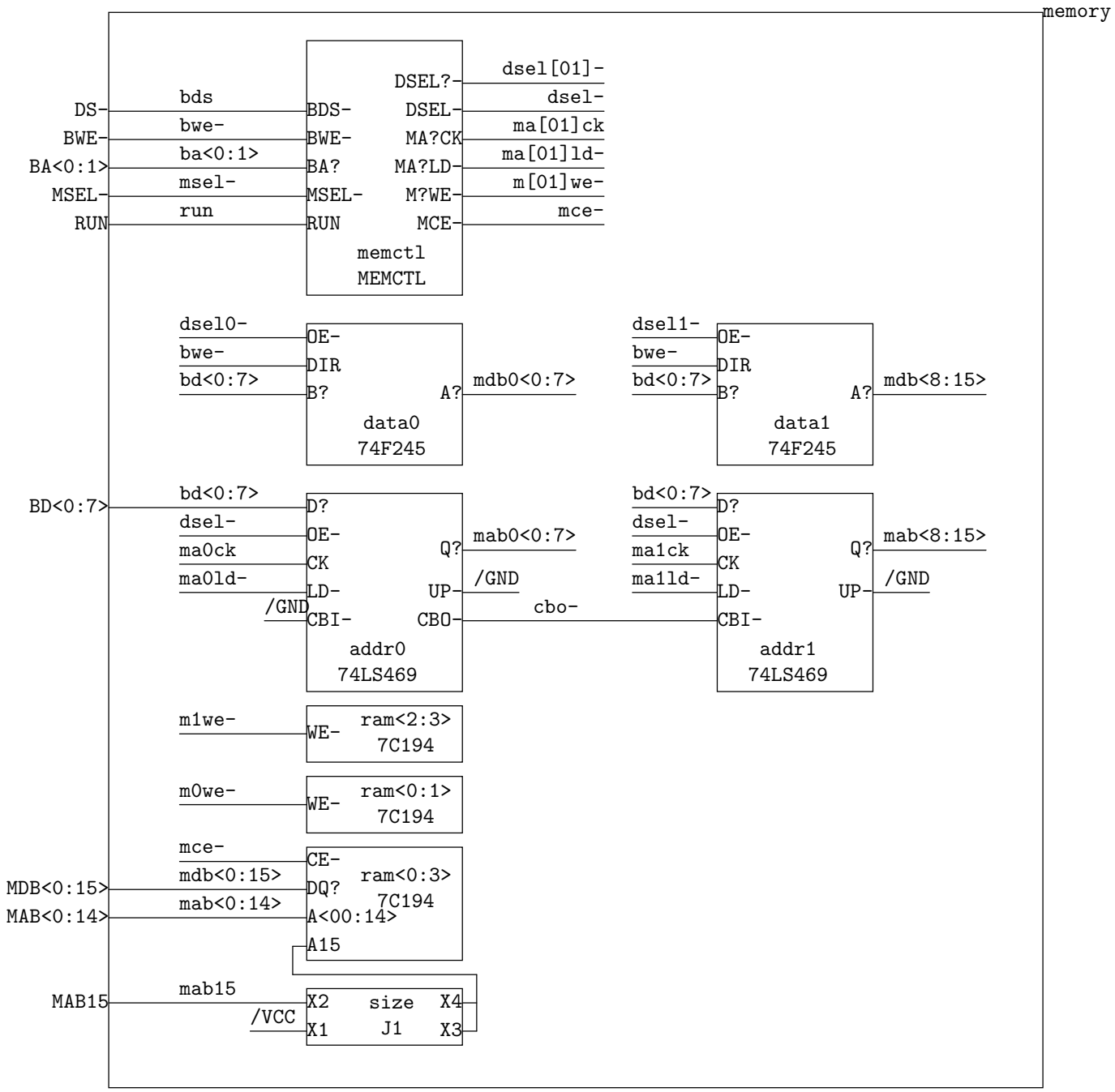
busi	The gnusic bus interface (really an extended gnot interface)
dsp	The generic DSP16
generic	generic was the top level gnusic "core" with a central DSP-16 in the middle. The DSP-16 served as a master of ceremonies.
memlogic	DSP16[slave memory (static expensive memory)
memory	Similar dual ported memory scheme
piobus	Parallel I/O bus interface - notice how the slave DSP32s are in this macro. Also note that the serial I/O was connected to a Time Slot Interchange (like my other project, DSP.*). I used a strange Telecom part for the switch (and, as I recall, $50 each).
slave	How to connect a DSP32C to a slave dual port memory
slavemem	the dual port memory

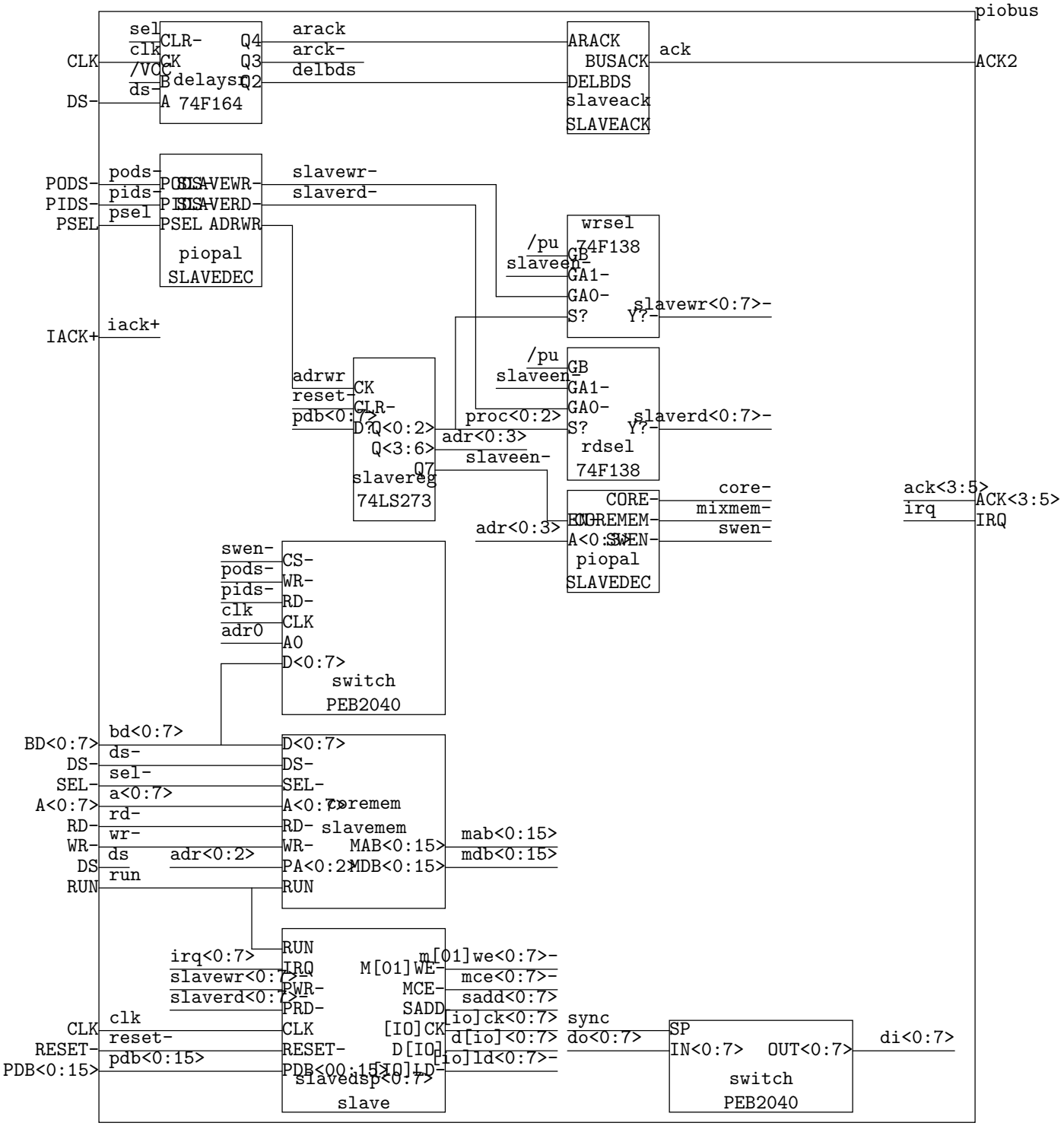

busi
/GND
C1
.01uF
/GND
C2
10uF
REF
CT
preset-
RESIN-
RESET
init
/GND
R2
1K
reset
TL7705A
/VCC
SENSE
RESET-
init-
/VCC
R1
1K
RESET-
/GND
NTC
gnotsw[012]
YHEXSW
pu8
TC
Y?
gb<00:11>
gb<04:11>
B?
gnotmatch
74F521
/GND
G-
pc<0:7>
A?
Y-
card-
CARD-
pu8
Y08
/buspu
bd<0:7>
Y0<0:7>
BI8981
V
/VCC
/GND
GND
PC?
acks
DIPSW8
A<0:3>
B<0:3>
bds-
D2
Y2
bds
DS
bwe-
D1
invbuf
Y1
bre-
RD-
port-
D0
74F240
Y0
port
PORT
/GND
OE?-
ACK<1:5>
ack<1:5>
Y<2:5>
acks<0:3>
D<1:5>
Y1
pack-
PORT-
ACK-
INT
bint
D0
ocinv
74LS05
Y0
pint-
INT-
RESET-
preset-
gnot
P2
bwe-
DIR
dboe-
OE-
DBOE-
bd<0:7>
A?
B?
BD<0:7>
databuf
74F245
pd<0:7>
PD?
DS-
WE-
PA?
/GND
OE?-
addrbuf
74F244
pds-
D7
Y7
bds-
DS-
pwe-
D6
Y6
bwe-
WR-
pa<0:5>
D<0:5>
Y<0:5>
ba<0:5>
A<0:5>
gb0<0:3>
B<0:3>

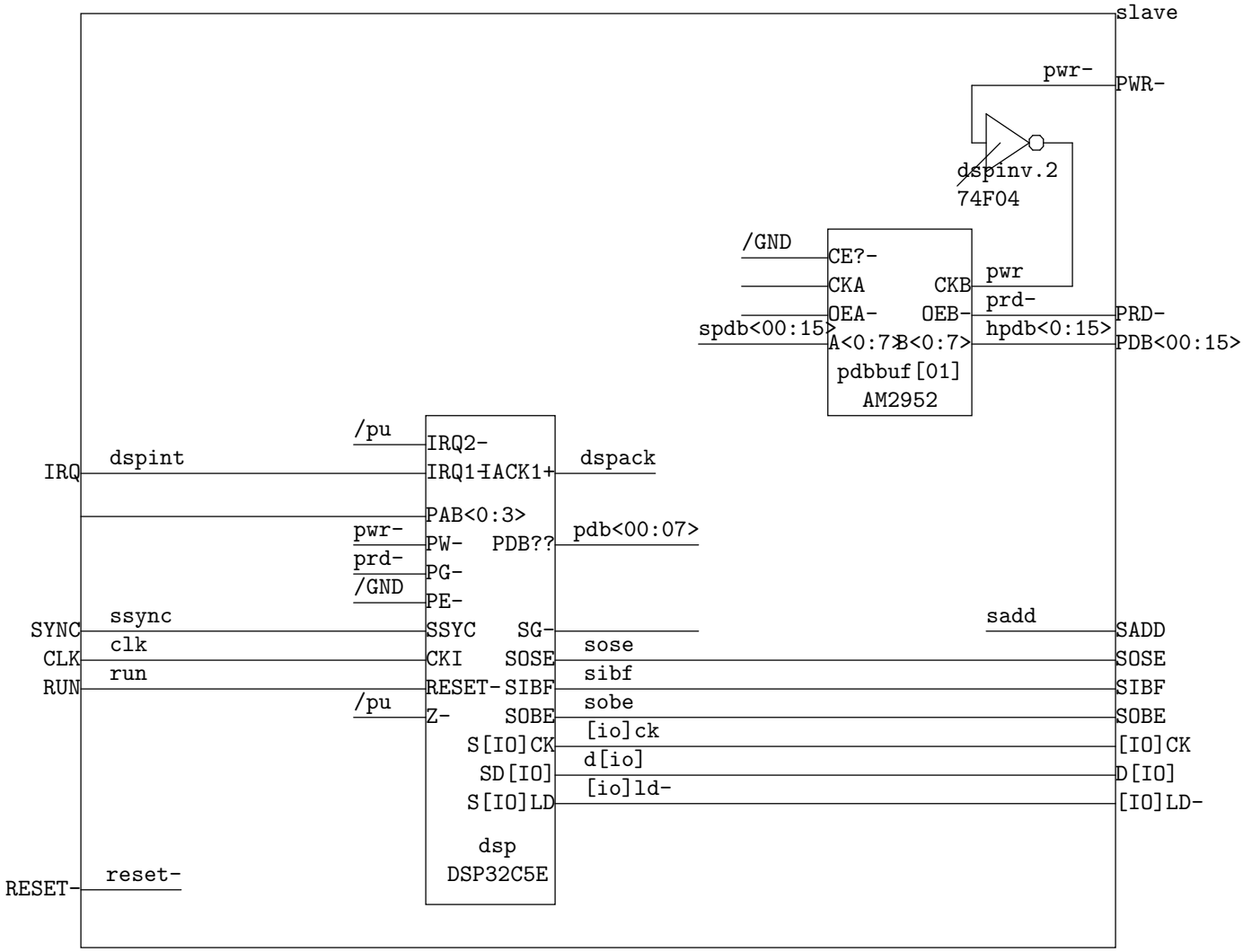

dsp
m[ad]b<00:14>
/VCC
Y?? V
m[ad]dbpu
BI8981
pdb15
mdb15
mab15
Y14 Y13
Y10 Y12
Y09 Y11
/buspu
BI8981
ckffpu
ffpu
ose
port
pclk
/VCC
CLR- Q5
CK Q4
B delaysr Q3
A74F164 Q2
delds4
delds3
delds2
delds1
A3
A2
A1
A0 B?
acksw
DIPSW8
back
BACK
selds
reset-
RESET-
SELDS
XSEL-
xsel-
EXTSEL-
select-
SELECT-
a1
wr-
port
card-
b<0:3>
a<2:5>
ds-
A1 SELECT-
BWE-
PORT
CARD- CRCK
B<0:3>
A<2:5>
DS- MSEL-
select
SELECT
PORT
CARD-
B<0:3>
A<2:5>
DS-
crck
msel-
MSEL-
DS-
BWE-
BA<0:1>
BD<0:7>
dualport
memory
WR-
A<0:1>
D<0:7>
RD-
DS
wr-
a<0:1>
d<0:7>
rd-
ds
crck
reset-
d<0:7>
Q<4:7>
Q3
CK Q2
CLR- Q1
D<0:7> Q0
dspcr
74LS273
dirff-
bits<4:7>
lroe
cksel
intie
run
BITS<0:3>
RUN
delay
D0 Q0-
CK0
CLR0- Q0
SET0-
cklrff
74LS74
lrff-
DEL50
I0 O0
lrff
lroe
LRFF LR
LROE
dspctl
DSPCTL
run
ffpu
lr
LR
DSPACK
DSPINT
IE
IRQ
RUN DSPCK
CKSEL
BCK
YCK
intie
irq
run
cksel
bck
IRQ
BCK
YCK
dspint
ock
/GND
run
/VCC
IRQ+ IACK+
PODS-
PIDS-
OCK OSE
SYNC-
DOE- PD??
RST- PSEL
EXM SADD
ICK
D[IO]
[IO]LD-
dspack
pods-
pids-
ose
sync-
pdb<00:15>
psel
sadd
ick
d[io]
[io]ld-
IACK+
PODS-
PIDS-
SYNC-
PDB<00:15>
PSEL
SADD
[io]ck
[IO]CK
D[IO]
[IO]LD-
ffpu
yck
CLR0-
SET0-
CK0
D0 Q0-
yckff
74LS74
Q0
yck2
run
mdb<00:15>
mab<00:15>
RUN
MDB??
MAB??
dualport
memory
Y02
Y01
Y00
/term
BI8985
ick
ild
di
pdb<00:14>
/VCC
Y?? V
pdbpu
BI8981
OUT
50Mhzosc
K1114
clk
ckffpu
D1 Q1-
CK1 Q1
CLR1-
SET1-
cklrff
74LS74
pclk
CKI
dsp A??
DSP16
D??
/VCC /GND
C1
0.01uF
CLK
pclk

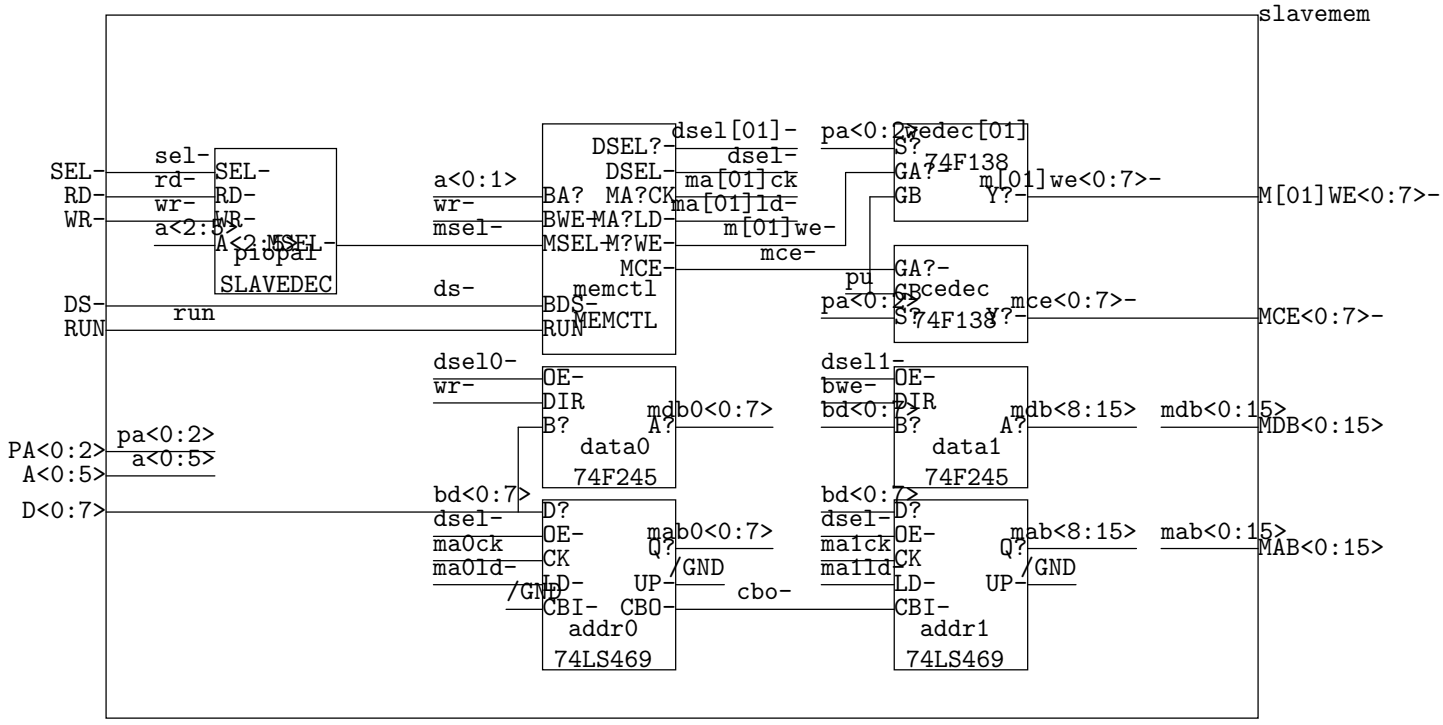

pclk
irq
CLK
IRQ
SELECT-
select-
iyck
ibck-
YCK
BCK-
DBOE-
DS-
ds-
DS-
SYNC-
sync-
SYNC-
DS
ds
DS
SADD
sadd
SADD
RD-
rd-
RD-
OLD-
old-
OLD-
WR-
wr-
WR-
OCK
ock
OCK
out_sioj
ack<1:5>
ACK<1:5>
PORT
port
PORT
DO
do
DO
SIOJ_OUT
CARD-
card-
CARD-
LR
lr
LR
reset-
bits<0:3>
RESET-
sw<0:3>
BITS<0:3>
ack1
B<0:3>
addr<0:5>
B<0:3>
BACK
/GND
X1
OCK
A<0:5>
bus<0:7>
A<0:5>
iyck
irq
int
intjmp
pint
BD<0:7>
D<0:7>
YCK
IRQ
X0 J3
Y
IACK+
iack+
IACK<2:5>
ack<2:5>
pids-
PIDS-
PIDS-
thedsp
pods-
PODS-
PODS-
dsp
psel
PSEL
PSEL
pdb<0:15>
PDB<0:15>
PDB??
busint
busi
ild-
ILD-
run
RUN
RUN
ILD-
ick
ICK
ICK
extsel-
EXTSEL-
EXTSEL-
in_sioj
di
DI
DI
selds
SELDS
SELDS
SIOJ_IN
ibck-
BCK-
BCK
rd-
RD-
iyck
YCK
YCK
wr-
WR-
sync-
ds
DS
SYNC-
sadd
ds-
DS-
SADD
bits<0:3>
BITS<0:3>
pclk
CLK
reset-
RESET-
addr<0:5>
A<0:5>
bus<0:7>
BD<0:7>
piob
piobus


memlogic
M1WE-
m1we-
WE-
ram<2:3>
7C194
M0WE-
m0we-
WE-
ram<0:1>
7C194
MCE-
mce-
CE-
MDB<0:31>
mdb<0:31>
DQ?
ram<0:7>
7C194
MAB<2:16>
mab<2:16>
A<00:14>
A15
MAB15
mab15
X2
X4
size
J1
/VCC
X1
X3
MAB<17:23>
mab<17:23>


memory
DS
BWE
BA<0:1>
MSEL
RUN
bds
bwe-
ba<0:1>
msel-
run
BDS-
BWE-
BA?
MSEL-
RUN
DSEL?
DSEL
MA?CK
MA?LD
M?WE
MCE
dsel[01]-
dsel-
ma[01]ck
ma[01]ld-
m[01]we-
mce-
memctl
MEMCTL
dsel0-
bwe-
bd<0:7>
OE-
DIR
B?
A?
mdb0<0:7>
data0
74F245
dsel1-
bwe-
bd<0:7>
OE-
DIR
B?
A?
mdb<8:15>
data1
74F245
BD<0:7>
bd<0:7>
dsel-
ma0ck
ma0ld-
/GND
D?
OE-
CK
LD-
CBI-
Q?
UP
CBO
mab0<0:7>
/GND
cbo-
addr0
74LS469
bd<0:7>
dsel-
ma1ck
ma1ld-
/GND
D?
OE-
CK
LD-
CBI-
Q?
UP
mab<8:15>
/GND
addr1
74LS469
m1we-
WE-
ram<2:3>
7C194
m0we-
WE-
ram<0:1>
7C194
mce-
mdb<0:15>
mab<0:14>
CE-
DQ?
A<00:14>
A15
ram<0:3>
7C194
MDB<0:15>
MAB<0:14>
MAB15
mab15
/VCC
X2
X1
size
J1
X4
X3


piobus
sel
clk
/VCC
ds-
CLR-
CK
B
A
delaysq
74F164
Q4
Q3
Q2
arack
arck-
delbds
CLK
DS-
ARACK
BUSACK
DELBDS
slaveack
SLAVEACK
ack
ACK2
pods-
pids-
psel
PODS-
PIDS-
PSEL
SLAVEWR-
SLAVERD-
PSEL ADRWR
piopal
SLAVEDEC
slavewr-
slaverd-
wrsel
74F138
/pu
slaveen-
GB-
GA1-
GA0-
S?
Y?-
slavewr<0:7>-
iack+
IACK+
adrwr
reset-
pdb<0:7>
CK
CLR-
D
Q<0:2>
Q<3:6>
Q7
slavereg
74LS273
/pu
slaveen
GB
GA1-
GA0-
S?
Y?-
rdsel
74F138
proc<0:2>
adr<0:3>
slaveen-
slaverd<0:7>-
core-
mixmem-
swen-
CORE-
MIXMEM-
SWEN-
piopal
SLAVEDEC
adr<0:3>
ack<3:5>
irq
ACK<3:5>
IRQ
swen-
pods-
pids-
clk
adr0
CS-
WR-
RD-
CLK
A0
D<0:7>
switch
PEB2040
BD<0:7>
DS-
SEL-
A<0:7>
RD-
WR-
DS
RUN
bd<0:7>
ds-
sel-
a<0:7>
rd-
wr-
ds
run
adr<0:2>
D<0:7>
DS-
SEL-
A<0:7>
RD-
WR-
PA<0:2>
RUN
slavemem
MAB<0:15>
MDB<0:15>
mab<0:15>
mdb<0:15>
irq<0:7>
slavewr<0:7>
slaverd<0:7>
RUN
IRQ
PWR-
PRD-
CLK
RESET-
PDB<00:15>
slavedsp<0:7>
slave
M[01]WE-
MCE-
SADD
[IO]CK
D[IO]
[IO]LD-
m[01]we<0:7>-
mce<0:7>-
sadd<0:7>
io]ck<0:7>
d[io]<0:7>
io]ld<0:7>-
sync
do<0:7>
SP
IN<0:7>
OUT<0:7>
switch
PEB2040
di<0:7>
CLK
RESET-
PDB<0:15>
clk
reset-
pdb<0:15>


slave
pwr-
PWR-
dspinv.2
74F04
/GND
CE?-
CKA
CKB
pwr
OEA-
OEB-
prd-
PRD-
spdb<00:15>
A<0:7>
B<0:7>
hpdb<0:15>
PDB<00:15>
pdbbuf[01]
AM2952
/pu
IRQ2-
IRQ
dspint
IRQ1-
ACK1+
dspack
PAB<0:3>
pwr-
PW-
PDB??
pdb<00:07>
prd-
PG-
/GND
PE-
SYNC
ssync
SSYC
SG-
sadd
SADD
CLK
clk
CKI
SOSE
sose
SOSE
RUN
run
RESET-
SIBF
sibf
SIBF
/pu
Z-
SOBE
sobe
SOBE
S[IO]CK
[io]ck
[IO]CK
SD[IO]
d[io]
D[IO]
S[IO]LD
[io]ld-
[IO]LD-
dsp
DSP32C5E
RESET-
reset-


slavemem
SEL-
RD-
WR-
DS-
RUN
sel-
rd-
wr-
a<2:5>
SEL-
RD-
WR-
A<2:5>
MSEL-
piopal
SLAVEDEC
run
a<0:1>
wr-
msel-
ds-
DSEL?-
DSEL-
BA?
MA?CK
BWE-
MA?LD-
MSEL-
M?WE-
MCE-
BDS-
RUN
memctl
MEMCTL
dsel[01]-
dsel-
ma[01]ck
ma[01]ld-
m[01]we-
mce-
pa<0:2>cedec[01]
S?
GA?-
GB
Y?-
m[01]we<0:7>-
M[01]WE<0:7>-
pu
GA?-
GB
cedec
pa<0:2>
S?
74F138
Y?-
mce<0:7>-
MCE<0:7>-
dsel0-
wr-
OE-
DIR
B?
A?
data0
74F245
mdb0<0:7>
dsel1-
bwe-
bd<0:7>
OE-
DIR
B?
A?
data1
74F245
mdb<8:15>
mdb<0:15>
MDB<0:15>
PA<0:2>
A<0:5>
pa<0:2>
a<0:5>
D<0:7>
bd<0:7>
dsel-
ma0ck
ma0ld-
D?
OE-
CK
LD-
CBI-
UP-
CBO-
Q?
/GND
/GND
mab0<0:7>
cbo-
addr0
74LS469
bd<0:7>
dsel-
ma1ck
ma1ld-
D?
OE-
CK
LD-
CBI-
UP-
Q?
/GND
mab<8:15>
mab<0:15>
MAB<0:15>
addr1
74LS469