PART NUMBER: 23-031K5-00

LOCATION: E92

DEVICE TYPE: PAL16R8
PIN NUMBER = SYMBOL TABLE:

1= CLK	8= Sync Carr L	15= Carr Sta L
2= CLSN H	9= TC L	16= Q0 L
3= Tx Act H	10= GND	17= Q1 L
4= Init H	11= EN	18= 4.8US BLK L
5= En Cerr H	12= CERR L	19= Int Pack L
6= GND H	13= Tx Area L	20= VCC
7= GND H	14= Det Clsn L	

NOTES: CERR1.PAL - (LNKL)

This program is the memory contents of the PAL logic used to detect heart beat. In addition this PAL is also used to form the upper 3 bits of the interpacket gap timer.

```
PAL PINS:  |0|0|0|0|0|0|0|0|1|1|1|1|1|1|1|1|1|1|
           |2|3|4|5|6|7|8|9|2|3|4|5|6|7|8|9|

OUTPIN 19  X X L X X X X L X X X L L H L X 4.8US BLK L = /Q1 L = Q0 L = TC L = Carr Sta L = /Init H
           X X L X X X H X X X X X X X L Int Pack L = /Sync Carr L = /Init H

OUTPIN 18  X X X X X X X X X X X L X H L X 4.8US BLK L = /Q1 L = Carr Sta L
           X X X X X X X X X X X L H X L X 4.8US BLK L = /Q0 L = Carr Sta L
           X X X X X X X H X X X L X X L X 4.8US BLK L = /TC L = Carr Sta L
           X X X X X X X L X X X L L L H X /4.8US BLK L = Q1 L = Q0 L = TC L = Carr Sta L
           X X X X X X H X X X X X X L L 4.8US BLK L = Int Pack L = /Sync Carr L

OUTPIN 17  X X X X X X X X X X X L H L X X Q1 L = /Q0 L = Carr Sta L
           X X X X X X X H X X X L X L X X Q1 L = /TC L = Carr Sta L
           X X X X X X X L X X X L L H X X /Q1 L = Q0 L = TC L = Carr Sta L
           X X X X X X H X X X X X X L X L Q1 L = Int Pack L = /Sync Carr L

OUTPIN 16  X X X X X X X H X X X L L X X X Q0 L = /TC L = Carr Sta L
           X X X X X X X L X X X L H X X X /Q0 L = TC L = Carr Sta L
           X X X X X X H X X X X X L X X L Q0 L = Int Pack L = /Sync Carr L

OUTPIN 15  X L L X X X H X X L X X X X X X /Sync Carr L = /Tx Act H = Tx Area L = /Init H
           X X L X X X X X X L X L X X X H Carr Sta L = Tx Area L = /Int Pack L = /Init H
           X L L X X X H X X H X X X H H X /Sync Carr L = /Tx Act H = /Tx Area L = /4.8US BLK L = /Q1 L = /Init H
           X X L X X X X X X H X L X X L H Carr Sta L = 4.8US BLK L = /Tx Area L = /Int Pack L = /Init H
           X X L X X X X X X H X L X L X H Carr Sta L = Q1 L = /Tx Area L = /Int Pack L = /Init H

OUTPIN 14  H X L X X X X X X X X X X X X H CLSN H = /Int Pack L = /Init H
           X X L X X X X X X X L X X X X H Det Clsn L = /Int Pack L = /Init H

OUTPIN 13  X H L X X X X X X X X X X X X H Tx Act H = /Int Pack L = /Init H
           X X L X X X X X X X L X X X X H Tx Area L = /Int Pack L = /Init H

OUTPIN 12  X X L H X X X X X X L H X X X X L Tx Area L = /Det Clsn L = Int Pack L = /Init H = En Cerr H
```

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REVISIONS		
CHK	CHANGE NO.	REV

digital

DRN: Ed Sargent | DATE 10-NOV-82 | ENG. Neil Bloomberg | DATE 10-NOV-82
CHK'D. Ken Sargent | DATE 10-NOV-82 | BOARD LOCATION: | SHEET 1 OF 1
DSK:LNKTTA.T2PC[4,27] 10-NOV-82 13:59 NEXT HIGHER ASSEMBLY: C-JA-M7793-0-0
FIRST USED ON OPTION/MODEL: DELNA

TITLE: DELNA LINK MODULE PAL LISTINGS

SIZE	CODE	NUMBER	REV.
K	CS	M7793-0-TTA	A

PART NUMBER: 23-030K5-00

LOCATION: E56, E70

DEVICE TYPE: PAL16R8
PIN NUMBER = SYMBOL TABLE:

1= CLK	8= SEL1 H	15= A4 L
2= CLR L	9= SEL0 H	16= A3 L
3= IN H	10= GND	17= A2 L
4= A n L	11= EN	18= A1 L
5= Shift L	12= A7 L	19= A0 L
6= A31 L	13= A6 L	20= VCC
7= GND H	14= A5 L	

NOTES: CRCHI.PAL - (LNKD)

THIS PROGRAM IS USED TO PERFOM A 32-BIT CRC
FUNCTION USING THE AUTODIN II POYINOMIAL.
The following table is used to determine the CRC equation used:

SEL1	SEL0	Equation	
0	0	Polynomials A31 to A24	=X**32 + X**26
0	1	Polynomials A23 to A16	=X**23 + X**22 + X**16
1	0	Polynomials A15 to A08	=X**12 + X**11 + X**10 + X**8
1	1	Polynomials A07 to A00	=X**7 + X**5 + X**4 + X**2 +X + 1

```
          |0|0|0|0|0|0|0|0|1|1|1|1|1|1|1|1|1|1|
PAL PINS: |2|3|4|5|6|7|8|9|2|3|4|5|6|7|8|9|

OUTPIN 19  X L X L L X X H X X X X X X X X /IN H * A31 L * Shift L * SEL0 H
           X H X L H X X H X X X X X X X X IN H * /A31 L * Shift L * SEL0 H
           X L H L L X X L X X X X X X X X /A n L * /IN H * A31 L * Shift L * /SEL0 H
           X H L L L X X L X X X X X X X X A n L * IN H * A31 L * Shift L * /SEL0 H
           X H H L H X X L X X X X X X X X /A n L * IN H * /A31 L * Shift L * /SEL0 H
           X L L L H X X L X X X X X X X X A n L * /IN H * /A31 L * Shift L * /SEL0 H
           X X L H X X X X X X X X X X X X A n L * /Shift L
           L X X X X X X X X X X X X X X X CLR L

OUTPIN 18  X L X L L X X H X X X X X X X H /A0 L * /IN H * A31 L * Shift L * SEL0 H
           X H X L L X X H X X X X X X X L A0 L * IN H * A31 L * Shift L * SEL0 H
           X H X L H X X H X X X X X X X H /A0 L * IN H * /A31 L * Shift L * SEL0 H
           X L X L H X X H X X X X X X X L A0 L * /IN H * /A31 L * Shift L * SEL0 H
           X X X L X X X L X X X X X X X L A0 L * Shift L * /SEL0 H
           X X X H X X X X X X X X X X X L A0 L * /Shift L
           L X X X X X X X X X X X X X X X CLR L

OUTPIN 17  X L X L L X X X X X X X X X H X /A1 L * /IN H * A31 L * Shift L
           X H X L L X X X X X X X X X L X A1 L * IN H * A31 L * Shift L
           X H X L H X X X X X X X X X H X /A1 L * IN H * /A31 L * Shift L
           X L X L H X X X X X X X X X L X A1 L * /IN H * /A31 L * Shift L
           X X X H X X X X X X X X X X L X A1 L * /Shift L
           L X X X X X X X X X X X X X X X CLR L

OUTPIN 16  X X X L X X X H X X X X X L X X A2 L * Shift L * SEL0 H
           X L X L L X X L X X X X X H X X /A2 L * /IN H * A31 L * Shift L * /SEL0 H
           X H X L L X X L X X X X X L X X A2 L * IN H * A31 L * Shift L * /SEL0 H
           X H X L H X X L X X X X X H X X /A2 L * IN H * /A31 L * Shift L * /SEL0 H
           X L X L H X X L X X X X X L X X A2 L * /IN H * /A31 L * Shift L * /SEL0 H
           X X X H X X X X X X X X X L X X A2 L * /Shift L
           L X X X X X X X X X X X X X X X CLR L

OUTPIN 15  X L X L L X X X X X X X H X X X /A3 L * /IN H * A31 L * Shift L
           X H X L L X X X X X X X L X X X A3 L * IN H * A31 L * Shift L
           X H X L H X X X X X X X H X X X /A3 L * IN H * /A31 L * Shift L
           X L X L H X X X X X X X L X X X A3 L * /IN H * /A31 L * Shift L
           X X X H X X X X X X X X L X X X A3 L * /Shift L
           L X X X X X X X X X X X X X X X CLR L

OUTPIN 14  X L X L L X X H X X X H X X X X /A4 L * /IN H * A31 L * Shift L * SEL0 H
           X H X L L X X H X X X L X X X X A4 L * IN H * A31 L * Shift L * SEL0 H
           X H X L H X X H X X X H X X X X /A4 L * IN H * /A31 L * Shift L * SEL0 H
           X L X L H X X H X X X L X X X X A4 L * /IN H * /A31 L * Shift L * SEL0 H
           X X X L X X X L X X X L X X X X A4 L * Shift L * /SEL0 H
           X X X H X X X X X X X L X X X X A4 L * /Shift L
           L X X X X X X X X X X X X X X X CLR L

OUTPIN 13  X X X L X X X X X X X L X X X X X A5 L * Shift L
           X X X H X X X X X X X L X X X X A5 L * /Shift L
           L X X X X X X X X X X X X X X X CLR L

OUTPIN 12  X L X L L X X H X H X X X X X X /A6 L * /IN H * A31 L * Shift L * SEL0 H
           X H X L L X X H X L X X X X X X A6 L * IN H * A31 L * Shift L * SEL0 H
           X H X L H X X H X H X X X X X X /A6 L * IN H * /A31 L * Shift L * SEL0 H
           X L X L H X X H X L X X X X X X A6 L * /IN H * /A31 L * Shift L * SEL0 H
           X X X L X X X L X L X X X X X X A6 L * Shift L * /SEL0 H
           X X X H X X X X X L X X X X X X A6 L * /Shift L
           L X X X X X X X X X X X X X X X CLR L
```

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REVISIONS		
CHK	CHANGE NO.	REV

DRN: Ken Sargent | DATE 08-NOV-82 | ENG. Neil Bloomberg | DATE 08-NOV-82
CHK: D. Ken Sargent | DATE 08-NOV-82 | BOARD LOCATION: | SHEET 1 OF 1
DSK:LNKTTB.T2P[4,27] 108-NOV-82 16:14 | NEXT HIGHER ASSEMBLY: D-UA-M7793-0-0
FIRST USED ON OPTION/MODEL: DELUNA

TITLE: DELUNA LINK MODULE PAL LISTINGS

SIZE	CODE	NUMBER	REV.
K	CS	M7793-0-TTB	A

PART NUMBER: 23-033K5-00

LOCATION: E84, E85

DEVICE TYPE: PAL16R8
PIN NUMBER = SYMBOL TABLE:

1= CLK	8= SEL1 H	15= A4 L
2= CLR L	9= SEL0 H	16= A3 L
3= IN H	10= GND	17= A2 L
4= A n L	11= EN	18= A1 L
5= Shift L	12= A7 L	19= A0 L
6= A31 L	13= A6 L	20= VCC
7= GND H	14= A5 L	

NOTES: CRCLO.PAL - (LNKD)

THIS PROGRAM IS USED TO PERFOM A 32-BIT CRC
FUNCTION USING THE AUTODIN II POYINOMIAL.
The following table is used to determine the CRC equation used:

SEL1	SEL0	Equation	
0	0	Polynomials A31 to A24	=X**32 + X**26
0	1	Polynomials A23 to A16	=X**23 + X**22 + X**16
1	0	Polynomials A15 to A08	=X**12 + X**11 + X**10 + X**8
1	1	Polynomials A07 to A00	=X**7 + X**5 + X**4 + X**2 + X + 1

```
          |0|0|0|0|0|0|0|0|1|1|1|1|1|1|1|1|1|1|
PAL PINS: |2|3|4|5|6|7|8|9|2|3|4|5|6|7|8|9|

OUTPIN 19  X L H L L X X H X X X X X X X X /A n L = /IN H = A31 L = Shift L = SEL0 H
           X H L L L X X H X X X X X X X X A n L = IN H = A31 L = Shift L = SEL0 H
           X H H L H X X H X X X X X X X X /A n L = IN H = /A31 L = Shift L = SEL0 H
           X L L L H X X H X X X X X X X X A n L = /IN H = /A31 L = Shift L = SEL0 H
           X X L L X X X L X X X X X X X X A n L = Shift L = /SEL0 H
           X X L H X X X X X X X X X X X X A n L = /Shift L
           L X X X X X X X X X X X X X X X CLR L

OUTPIN 18  X X X L X X X X X X X X X X X L A0 L = Shift L
           X X X H X X X X X X X X X X X L A0 L = /Shift L
           L X X X X X X X X X X X X X X X CLR L

OUTPIN 17  X X X L X X X H X X X X X X L X A1 L = Shift L = SEL0 H
           X L X L L X X L X X X X X X H X /A1 L = /IN H = A31 L = Shift L = /SEL0 H
           X H X L L X X L X X X X X X L X A1 L = IN H = A31 L = Shift L = /SEL0 H
           X H X L H X X L X X X X X X H X /A1 L = IN H = /A31 L = Shift L = /SEL0 H
           X L X L H X X L X X X X X X L X A1 L = /IN H = /A31 L = Shift L = /SEL0 H
           X X X H X X X X X X X X X X L X A1 L = /Shift L
           L X X X X X X X X X X X X X X X CLR L

OUTPIN 16  X X X L X X X X X X X X X L X X A2 L = Shift L
           X X X H X X X X X X X X X L X X A2 L = /Shift L
           L X X X X X X X X X X X X X X X CLR L

OUTPIN 15  X X X L X X X X X X X X X L X X X A3 L = Shift L
           X X X H X X X X X X X X X L X X X A3 L = /Shift L
           L X X X X X X X X X X X X X X X CLR L

OUTPIN 14  X X X L X X X X X X X X X L X X X A4 L = Shift L
           X X X H X X X X X X X X X L X X X A4 L = /Shift L
           L X X X X X X X X X X X X X X X CLR L

OUTPIN 13  X L X L L X X H X X H X X X X X /A5 L = /IN H = A31 L = Shift L = SEL0 H
           X H X L L X X H X X L X X X X X A5 L = IN H = A31 L = Shift L = SEL0 H
           X H X L H X X H X X H X X X X X /A5 L = IN H = /A31 L = Shift L = SEL0 H
           X L X L H X X H X X L X X X X X A5 L = /IN H = /A31 L = Shift L = SEL0 H
           X X X L X X X L X X L X X X X X A5 L = Shift L = /SEL0 H
           X X X H X X X X X X L X X X X X A5 L = /Shift L
           L X X X X X X X X X X X X X X X CLR L

OUTPIN 12  X L X L L X X H X H X X X X X /A6 L = /IN H = A31 L = Shift L = SEL0 H
           X H X L L X X H X L X X X X X A6 L = IN H = A31 L = Shift L = SEL0 H
           X H X L H X X H X H X X X X X /A6 L = IN H = /A31 L = Shift L = SEL0 H
           X L X L H X X H X L X X X X X A6 L = /IN H = /A31 L = Shift L = SEL0 H
           X X X L X X X L X L X X X X X A6 L = Shift L = /SEL0 H
           X X X H X X X X X L X X X X X A6 L = /Shift L
           L X X X X X X X X X X X X X X X CLR L
```

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REVISIONS		
CHK	CHANGE NO.	REV

digital

DRN: K.L. Sargent — DATE 08-NOV-82 — ENG: Neil Bloomberg — DATE 08-NOV-82
CHK'D: Ken Sargent — DATE 08-NOV-82 — BOARD LOCATION:
DSK:LNKTTC.T2P[4,27] 08-NOV-82 16:14 — SHEET 1 OF 1
FIRST USED ON OPTION/MODEL: DELUNA — NEXT HIGHER ASSEMBLY: D-UA-M7793-0-0

TITLE: DELUNA LINK MODULE PAL LISTINGS

SIZE	CODE	NUMBER	REV.
K	CS	M7793-0-TTC	A

PART NUMBER: 23-034K4-00

LOCATION: E50

DEVICE TYPE: PAL16R6
PIN NUMBER = SYMBOL TABLE:

1= CLK	8= Clsn H	15= Pre LCOL L
2= RTRY H	9= Pream2 State L	16= LCOL L
3= Tx Ena H	10= GND	17= Jam Sta L
4= Tx Act H	11= EN	18= Retry Sta L
5= Done Jam L	12= Retry H	19= Retry Init L
6= Slottim En H	13= Pre LCAR L	20= VCC
7= Carr H	14= LCAR L	

NOTES: RETRY.PAL - (LNKK)

This program is the memory contents of the PAL logic used to form the Retry Logic state machine. The Retry Logic State Machine is used to implement the Retry algorithm specified in the Ethernet Specification. This PAL is also used to detect LCOL and LCAR.

```
        |0|0|0|0|0|0|0|0|1|1|1|1|1|1|1|1|1|1|
PAL PINS: |2|3|4|5|6|7|8|9|2|3|4|5|6|7|8|9|

OUTPIN 19  X X X X X X X X X X X X X X X X VCC
           X H X X X X X X X X X X X X X Tx Ena H
           X X X X X X H X X X X X X H H X Clsn H * /Jam Sta L * /Retry Sta L
           X L X L X X X X X X X X X X X Done Jam L * /Tx Ena H

OUTPIN 18  X L X X X X X X X X X X L X X Jam Sta L * /Tx Ena H
           L L X X X X X X L X X X X X L X Retry Sta L * /RTRY H * /Retry L * /Tx Ena H

OUTPIN 17  X X H H X X X H X X X X X X X H X Clsn H * /Done Jam L * Tx Act H * /Retry Sta L
           X X H H X X X X X X X X X L X X Jam Sta L * /Done Jam L * Tx Act H

OUTPIN 16  X L H X X X H X X X X L X X X X Pre LCOL L * Clsn H * Tx Act H * /Tx Ena H
           X L X X X X X X X X X L X X X LCOL L * /Tx Ena H

OUTPIN 15  X L H X H X X X X X X X X X X X Slottim En H * Tx Act H * /Tx Ena H
           X L H X X X X X X X X L X X X X Pre LCOL L * Tx Act H * /Tx Ena H

OUTPIN 14  X L H X X L X X X L X X X X H X /Carr H * Pre LCAR L * Tx Act H * /Retry Sta L * /Tx Ena H
           X L L X X X X X H X L X X H X /Pre LCAR L * /Tx Act H * Pre LCOL L * /Retry Sta L * /Tx Ena H
           X L H X X X X X X L X X X H X LCAR L * /Retry Sta L * Tx Act H * /Tx Ena H
           X L L X X X X X X X L X X X X LCAR L * /Tx Act H * /Tx Ena H

OUTPIN 13  X L H X X H X X X X X X X X H X Carr H * /Retry Sta L * Tx Act H * /Tx Ena H
           X L H X X X X X X L X X X X H X Pre LCAR L * /Retry Sta L * Tx Act H * /Tx Ena H
           X L L X X X X X X L X X X X X Pre LCAR L * /Tx Act H * /Tx Ena H

OUTPIN 12
```

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REVISIONS		
CHK	CHANGE NO.	REV

DRN. Ken Sargent | DATE 08-NOV-82 | ENG. Neil Bloomberg | DATE 08-NOV-82
CHK'D. Ken Sargent | DATE 08-NOV-82 | BOARD LOCATION: | SHEET 1 OF 1
DSK:LNKTTD.T2PL[4,27] 08-NOV-82 16:14 | NEXT HIGHER ASSEMBLY: D-UA-M7793-0-0
FIRST USED ON OPTION/MODEL: DELUNA

TITLE: DELUNA LINK MODULE PAL LISTINGS

SIZE	CODE	NUMBER	REV.
K	CS	M7793-0-TTD	A

PART NUMBER: 23-035K4-00

LOCATION: E22

DEVICE TYPE: PAL16R6
PIN NUMBER = SYMBOL TABLE:

1= CLK	8= SEL2 H	15= RMD1 L
2= RAN3 H	9= SEL3 H	16= RMD2 L
3= RAN2 H	10= GND	17= RMD3 L
4= RAN1 H	11= EN	18= RMD4 L
5= RAN0 H	12= Load L	19= RAN4 H
6= SEL0 H	13= ONE L	20= VCC
7= SEL1 H	14= RMD0 L	

NOTES: RNMS1.PAL - (LNKK)
This program implements the random number mask function specified in the Ethernet spec.

```
                 |0|0|0|0|0|0|0|0|1|1|1|1|1|1|1|1|1|1|
PAL PINS:        |2|3|4|5|6|7|8|9|2|3|4|5|6|7|8|9|

OUTPIN 19

OUTPIN 18  X X X X X X X H L X X X X X X H SEL3 H * RAN4 H * Load L
           X X X X X X H X L X X X X X X H SEL2 H * RAN4 H * Load L
           X X X X X X X X H X X X X X L X RMD4 L * /Load L

OUTPIN 17  H X X X X X X H L X X X X X X X SEL3 H * RAN3 H * Load L
           H X X X X X H X L X X X X X X X SEL2 H * RAN3 H * Load L
           H X X X H H X X L X X X X X X X SEL0 H * SEL1 H * RAN3 H * Load L
           X X X X X X X X H X X X X L X X RMD3 L * /Load L

OUTPIN 16  X H X X X H X X L X X X X X X X SEL1 H * RAN2 H * Load L
           X H X X X X H X L X X X X X X X SEL2 H * RAN2 H * Load L
           X H X X X X X H L X X X X X X X SEL3 H * RAN2 H * Load L
           X X X X X X X X H X X X L X X X RMD2 L * /Load L

OUTPIN 15  X X H X H X X X L X X X X X X X SEL0 H * RAN1 H * Load L
           X X H X X H X X L X X X X X X X SEL1 H * RAN1 H * Load L
           X X H X X X H X L X X X X X X X SEL2 H * RAN1 H * Load L
           X X H X X X X H L X X X X X X X SEL3 H * RAN1 H * Load L
           X X X X X X X X H X X L X X X X RMD1 L * /Load L

OUTPIN 14  X X X H X X X X L X X X X X X X RAN0 H * Load L
           X X X X X X X X H X L X X X X X RMD0 L * /Load L

OUTPIN 13  X X X X H L L L X X X X X X X X /SEL3 H * /SEL2 H * /SEL1 H * SEL0 H

OUTPIN 12
```

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REVISIONS		
CHK	CHANGE NO.	REV

digital

DRN: Ed Sargent DATE 08-NOV-82 ENG. Neil Bloomberg DATE 08-NOV-82
CHK: D. Ken Sargent DATE 08-NOV-82 BOARD LOCATION: SHEET 1 OF 1
DSK:LNKTTE.T2PL[4,27] 08-NOV-82 16:14 NEXT HIGHER ASSEMBLY: D-UA-M7793-0-0
FIRST USED ON OPTION/MODEL: DEUNA

TITLE: DEUNA LINK MODULE PAL LISTINGS

SIZE	CODE	NUMBER	REV.
K	CS	M7793-0-TTE	A

TW

PART NUMBER: 23-036K4-00

LOCATION: E23

DEVICE TYPE: PAL16R6
PIN NUMBER = SYMBOL TABLE:

1= CLK	8= SEL2 H	15= RMD6 L
2= RAN8 H	9= SEL3 H	16= RMD7 L
3= RAN7 H	10= GND	17= RMD8 L
4= RAN6 H	11= EN	18= RMD9 L
5= RAN5 H	12= Load L	19= RAN9 H
6= SEL0 H	13= MORE L	20= VCC
7= SEL1 H	14= RMD5 L	

NOTES: RNMS2.PAL - (LNKK)
This program implements the Random number mask function specified in the Ethernet spec.

```
          |0|0|0|0|0|0|0|0|1|1|1|1|1|1|1|1|1|1|
PAL PINS: |2|3|4|5|6|7|8|9|2|3|4|5|6|7|8|9|

OUTPIN 19


OUTPIN 18  X X X X X X H H L X X X X X X H SEL3 H = SEL2 H = RAN9 H = Load L
           X X X X X H X H L X X X X X X H SEL3 H = SEL1 H = RAN9 H = Load L
           X X X X H X X H L X X X X X X H SEL3 H = SEL0 H = RAN9 H = Load L
           X X X X X X X X H X X X X X L X RMD9 L = /Load L


OUTPIN 17  H X X X X X X H L X X X X X X X SEL3 H = RAN8 H = Load L
           X X X X X X X X H X X X X L X X RMD8 L = /Load L


OUTPIN 16  X H X X X X X H L X X X X X X X SEL3 H = RAN7 H = Load L
           X H X X H H H X L X X X X X X X SEL2 H = SEL1 H = SEL0 H = RAN7 H = Load L
           X X X X X X X X H X X X L X X X RMD7 L = /Load L


OUTPIN 15  X X H X X X X X H L X X X X X X X SEL3 H = RAN6 H = Load L
           X X H X X H H X L X X X X X X X SEL2 H = SEL1 H = RAN6 H = Load L
           X X X X X X X X H X X L X X X X RMD6 L = /Load L


OUTPIN 14  X X X H X X X H L X X X X X X X SEL3 H = RAN5 H = Load L
           X X X H H X H X L X X X X X X X SEL2 H = SEL0 H = RAN5 H = Load L
           X X X H X H H X L X X X X X X X SEL2 H = SEL1 H = RAN5 H = Load L
           X X X X X X X X H X L X X X X X RMD5 L = /Load L


OUTPIN 13  X X X X X X X H X X X X X X X X SEL3 H
           X X X X X X H X X X X X X X X X SEL2 H
           X X X X X H X X X X X X X X X X SEL1 H


OUTPIN 12
```

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REVISIONS		
CHK	CHANGE NO.	REV

DRN: K. Lampert
CHK'D: Ken Sargent
DATE 08-NOV-82 ENG. Neil Bloomberg
DATE 08-NOV-82
DATE 08-NOV-82 BOARD LOCATION:
SHEET 1 OF 1
DSK:LNKTTF.T2PL(4,27) 08-NOV-82 16:14 NEXT HIGHER ASSEMBLY:
FIRST USED ON OPTION/MODEL: DELUNA D-PC-M7793-0-0

TITLE: DELUNA LINK MODULE PAL LISTINGS

SIZE	CODE	NUMBER	REV.
K	CS	M7793-0-TTF	A

PART NUMBER: 23-028K5-00

LOCATION: E37

DEVICE TYPE: PAL16R8
PIN NUMBER = SYMBOL TABLE:

1= CLK	8= Inter Pack L	15= No Carr Sta L
2= ON H	9= Adv PTR L	16= Rx Active L
3= Carr H	10= GND	17= Bad Pack Sta L
4= Runt Or NMatch H	11= EN	18= Pack Ok Sta L
5= NC H	12= Rx Ena Sta L	19= Miss L
6= Free Rx Buff H	13= Res PTR L	20= VCC
7= NC H	14= Inc PTR L	

NOTE: RXST1.PAL - (LNKH)

This program is the memory contents of the PAL logic used to form the Receive State machine. This PAL is used to receive the Preamble, Data, and check the CRC. If there is an error the State machine will jump to either the Miss, or Bad Pack State. If a packet is received without error the program will sequence to the write status routine in RXSTA2.PAL.

```
PAL PINS:  |0|0|0|0|0|0|0|0|1|1|1|1|1|1|1|1|1|1|
           |2|3|4|5|6|7|8|9|2|3|4|5|6|7|8|9|

OUTPIN 19  H X X X L X X X X X X X L X X X Rx Active L = /Free Rx Buff H = ON H
           H X X X X X X X X X X L X X L Miss L = Rx Active L = ON H

OUTPIN 18  H L L X X X X X X X X X L X X H Rx Active L = /Carr H = /Runt Or NMatch H = /Miss L = ON H

OUTPIN 17  H L H X X X X X X X X X L X X X Rx Active L = /Carr H = Runt Or NMatch H = ON H

OUTPIN 16  H H X X X X X X X X X L X X X X No Carr Sta L = ON H = Carr H
           H H X X X X X X X X X L H X X Rx Active L = /Bad Pack Sta L = Carr H = ON H
           H H X X X X X X X X X L X H X Rx Active L = /Pack Ok Sta L = Carr H = ON H

OUTPIN 15  H L X X X X X X L X X X X X X Rx Ena Sta L = /Carr H = ON H
           H L X X X X X X X X L H X X X No Carr Sta L = /Rx Active L = /Carr H = ON H

OUTPIN 14  H X X X X X X X X L X X X X X Res PTR L = ON H

OUTPIN 13  H H X X X X X X X X X L X X X X No Carr Sta L = ON H = Carr H

OUTPIN 12  L X X X X X X X X X X X X X X /ON H
           H X X X X X X L X X X X X X X Adv PTR L = ON H
           H X X X X X X X X X X X X L X X Bad Pack Sta L = ON H
           H X X X X X X X X X X X H X X L Miss L = ON H = /Rx Active L
           H H X X X X X X L X X X X X X Rx Ena Sta L = Carr H = ON H
```

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REVISIONS		
CHK	CHANGE NO.	REV

DRN: K. Sargent
CHK'D: Ken Sargent
DATE ENG: 08-NOV-82 Neil Bloomberg
DATE 08-NOV-82
DATE 08-NOV-82 BOARD LOCATION:
SHEET 1 OF 1
DSK:LNKTTH.T2P[4,27] 08-NOV-82 16:14 NEXT HIGHER ASSEMBLY: C-_A-M7793-0-0
FIRST USED ON OPTION/MODEL: DELNA

TITLE: DELNA LINK MODULE PAL LISTINGS

SIZE	CODE	NUMBER	REV.
K	CS	M7793-0-TTH	A

PART NUMBER: 23-029K5-00

LOCATION: E32

DEVICE TYPE: PAL16R8
PIN NUMBER = SYMBOL TABLE:

1= CLK	8= MISS L	15= Pause L
2= ON H	9= Pack Ok State L	16= RX WR STAT1 L
3= Carr H	10= GND	17= PTR ADV L
4= Runt Or NMatch H	11= EN	18= Sel Rx Data L
5= MEM CYCDN H	12= Set Miss L	19= Odd Byte L
6= RX FRAME H	13= PTR RES L	20= VCC
7= Mlen0 H	14= RX WR STAT0 L	

NOTE: RXST2.PAL - (LNKH)

This Program is the memory contents of the PAL logic used to form the Receive State Machine. This PAL forms the second part of the state machine and is used to Write status at the end of the Packet.

```
          |0|0|0|0|0|0|0|0|1|1|1|1|1|1|1|1|1|1|
PAL PINS: |2|3|4|5|6|7|8|9|2|3|4|5|6|7|8|9|

OUTPIN 19  H X X X X X X L X X X X X X X X Pack Ok State L = ON H
           H X X X X X X X X X X X X L L Odd Byte L = Sel Rx Data L = ON H

OUTPIN 18  H X X X H X H X X X X X X X X RX FRAME H = /MISS L = ON H
           H X X X H X L X X X X X X X Pack Ok State L = Mlen0 H = ON H
           H X X L X X X X X X X X X L X Sel Rx Data L = /MEM CYCDN H = ON H

OUTPIN 17  H X X H X X X X X X X L X X X RX WR STAT1 L = MEM CYCDN H = ON H

OUTPIN 16  H X X X X X X X X X X L X X X X Pause L = ON H
           H X X L X X X X X X X L X X X RX WR STAT1 L = /MEM CYCDN H = ON H

OUTPIN 15  H X X H X X X X X X L X X X X X RX WR STAT0 L = MEM CYCDN H = ON H
           H X X X X X X X X X L H X X X Pause L = /RX WR STAT1 L = ON H

OUTPIN 14  H X X X X X X X X L X X X X X X PTR RES L = ON H
           H X X L X X X X X X L X X X X X RX WR STAT0 L = /MEM CYCDN H = ON H

OUTPIN 13  H X X X X X X X X X X X X X H L Odd Byte L = /Sel Rx Data L = ON H

OUTPIN 12  H L L X X X L X X X X X X X X MISS L = /Carr H = /Runt Or NMatch H = ON H
```

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REVISIONS		
CHK	CHANGE NO.	REV

DRN: [illegible] DATE 08-NOV-82
CHK: D. Ken Sargent DATE 08-NOV-82
ENG. Neil Bloomberg DATE 08-NOV-82
BOARD LOCATION:
SHEET 1 OF 1
DSK:LNKTTJ.T2P[4,27] 08-NOV-82 16:15
NEXT HIGHER ASSEMBLY: M7793-0-0
FIRST USED ON OPTION/MODEL: DEUNA

TITLE: DEUNA LINK MODULE PAL LISTINGS

SIZE	CODE	NUMBER	REV.
K	CS	M7793-0-TTJ	A

PART NUMBER: 23-037K4-00

LOCATION: E102, E103

DEVICE TYPE: PAL16R6
PIN NUMBER = SYMBOL TABLE:

1= CLK	8= Rx In H	15= Match3 L
2= STA ADR0 H	9= Clr L	16= Match2 L
3= STA ADR1 H	10= GND	17= Match1 L
4= STA ADR2 H	11= EN	18= Match0 L
5= STA ADR3 H	12= CRY Out L	19= CRY In H
6= STA ADR4 H	13= Match5 L	20= VCC
7= STA ADR5 H	14= Match4 L	

NOTES: STMT1.PAL - (LNKF)

This program is the memory contents of the PAL logic used to form the Station Address Detection STA ADR Logic.

```
PAL PINS:  |0|0|0|0|0|0|0|0|1|1|1|1|1|1|1|1|1|1|
           |2|3|4|5|6|7|8|9|2|3|4|5|6|7|8|9|

OUTPIN 19

OUTPIN 18  L X X X X X L X X X X X X X L X /Rx In H * /STA ADR0 H * Match0 L
           H X X X X X H X X X X X X X L X Rx In H * STA ADR0 H * Match0 L
           X X X X X X L X X X X X X X X Clr L

OUTPIN 17  X L X X X X L X X X X X X L X X /Rx In H * /STA ADR1 H * Match1 L
           X H X X X X H X X X X X X L X X Rx In H * STA ADR1 H * Match1 L
           X X X X X X L X X X X X X X X Clr L

OUTPIN 16  X X L X X X L X X X X X L X X X /Rx In H * /STA ADR2 H * Match2 L
           X X H X X X H X X X X X L X X X Rx In H * STA ADR2 H * Match2 L
           X X X X X X L X X X X X X X X Clr L

OUTPIN 15  X X X L X X L X X X X L X X X X /Rx In H * /STA ADR3 H * Match3 L
           X X X H X X H X X X X L X X X X Rx In H * STA ADR3 H * Match3 L
           X X X X X X L X X X X X X X X Clr L

OUTPIN 14  X X X X L X L X X X L X X X X X /Rx In H * /STA ADR4 H * Match4 L
           X X X X H X H X X X L X X X X X Rx In H * STA ADR4 H * Match4 L
           X X X X X X L X X X X X X X X Clr L

OUTPIN 13  X X X X X L L X X L X X X X X X /Rx In H * /STA ADR5 H * Match5 L
           X X X X X H H X X L X X X X X X Rx In H * STA ADR5 H * Match5 L
           X X X X X X L X X X X X X X X Clr L

OUTPIN 12  X X X X X X X X X X X X X X X X VCC
           X X X X X X X X X X X X X X L X Match0 L
           X X X X X X X X X X X X X L X X Match1 L
           X X X X X X X X X X X X L X X X Match2 L
           X X X X X X X X X X X L X X X X Match3 L
           X X X X X X X X X X L X X X X X Match4 L
           X X X X X X X X X L X X X X X X Match5 L
           X X X X X X X X X X X X X X X H CRY In H
```

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REVISIONS		
CHK	CHANGE NO.	REV

DRN: [signature] DATE 10-NOV-82
CHK'D. Ken Sargent DATE 10-NOV-82
ENG. Neil Bloomberg DATE 10-NOV-82
BOARD LOCATION:
SHEET 1 OF 1
DSK:LNKTTK.T2P[4,27] [10-NOV-82 13:59]
FIRST USED ON OPTION/MODEL: DEUNA
NEXT HIGHER ASSEMBLY: D-UA-M7793-0-0

TITLE: DEUNA LINK MODULE PAL LISTINGS

SIZE	CODE	NUMBER	REV.
K	CS	M7793-0-TTK	A

PART NUMBER: 23-025K5-00

LOCATION: E49

DEVICE TYPE: PAL16R8
PIN NUMBER = SYMBOL TABLE:

1= CLK	8= CLSN H	15= Pre3 State L
2= TATT H	9= MEM CYCDN H	16= Pre4 State L
3= Inter Pack L	10= GND	17= DTATT L
4= RTRY CNT H	11= EN	18= Data State L
5= ON H	12= Tx Ena Sta L	19= Data REQ L
6= Tx Frame H	13= Pre1 State L	20= VCC
7= Cnt Done H	14= Pre2 State L	

NOTE: TXST1.PAL - (LNKL)

This program is the Memory contents of the PAL logic used to form the transmit State machine. This PAL is used to transmit the Preamble and the Data. If a Collision should occur the the PAL will clear all the States and then jump to the JAM State in PAL TxSTA3.PAL

```
          |0|0|0|0|0|0|0|0|1|1|1|1|1|1|1|1|1|1|
PAL PINS: |2|3|4|5|6|7|8|9|2|3|4|5|6|7|8|9|

OUTPIN 19  X X X H H X X X X X X L X X X X Pre3 State L * Tx Frame H * ON H
           X X X H H X X X X X X L X X X Pre4 State L * Tx Frame H * ON H
           X X X H H L L X X X X X X L X Data State L * Tx Frame H * /Cnt Done H * /CLSN H * ON H
           X X X H X X X L X X X X X X L Data REQ L * /MEM CYCDN H * ON H

OUTPIN 18  X X X H H X X X X X X X L X X X Tx Frame H * Pre4 State L * ON H
           X X X H X L L X X X X X X L X Data State L * /Cnt Done H * /CLSN H * ON H

OUTPIN 17  H X X X X X X X X X X X X X X TATT H

OUTPIN 16  X X X H H X X X X X X L X X X X Tx Frame H * Pre3 State L * ON H
           X X X H X X X X X X X L X H X Pre4 State L * /Data State L * ON H

OUTPIN 15  X X X H H X X X X X X L X X X X Tx Frame H * Pre2 State L * ON H
           X X X H X X X X X X X L H X X Pre3 State L * /Pre4 State L * ON H

OUTPIN 14  X X X H H X X X X X L X X X X X Tx Frame H * Pre1 State L * ON H
           X X X H X X X X X X L H X X X Pre2 State L * /Pre3 State L * ON H

OUTPIN 13  X L X H X X X X L X X X X X X Tx Ena Sta L * Inter Pack L * ON H
           X X X H X X X X X L H X X X X Pre1 State L * /Pre2 State L * ON H

OUTPIN 12  H X X H X X X X X X X X H X X TATT H * /DTATT L * ON H
           X X H H X X X X X X X X X X X RTRY CNT H * ON H
           X X X H X X X X L H X X X X X Tx Ena Sta L * /Pre1 State L * ON H
```

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REVISIONS		
CHK	CHANGE NO.	REV

digital

DRN: K.J. Sargent
CHK'D: Ken Sargent
DSK:LNKTTL.T2PL[4,27] 08-NOV-82 16:15
FIRST USED ON OPTION/MODEL: DELNA

DATE ENG. 08-NOV-82 Neil Bloomberg DATE 08-NOV-82
DATE 08-NOV-82 BOARD LOCATION: SHEET 1 OF 1
NEXT HIGHER ASSEMBLY: C-LA-M7793-0-0

TITLE: DELNA LINK MODULE PAL LISTINGS

SIZE	CODE	NUMBER	REV.
K	CS	M7793-0-TTL	A

PART NUMBER: 23-026K5-00

LOCATION: E51

DEVICE TYPE: PAL16R8
PIN NUMBER = SYMBOL TABLE:

1= CLK	8= CLSN H	15= Tx WR Stat0 L
2= Data State L	9= MEM CYCDN H	16= Tx WR Stat1 L
3= DTCR H	10= GND	17= Sel Tx CRC L
4= RTRY H	11= EN	18= Done L
5= ON H	12= CRC1 State L	19= Stat Req L
6= Tx Frame H	13= CRC2 State L	20= VCC
7= Cnt Done H	14= RES PTR L	

NOTES: TXST2.PAL - (LNKL)

This program is the memory contents of the PAL logic used to form the transmit State machine. This PAL is used to transmit the CRC at the end of the packet. If a CLSNision should occur all States will be cleared. At the end of the CRC or if DTCR is valid at the end of the Data field the PAL will then Write Status to the Link Memory buffer in the PORT.

```
                |0|0|0|0|0|0|0|0|1|1|1|1|1|1|1|1|1|1|
PAL PINS:       |2|3|4|5|6|7|8|9|2|3|4|5|6|7|8|9|

OUTPIN 19       X X X H X X X L X X X L X X X X Tx WR Stat0 L = /MEM CYCDN H = ON H
                X X X H X X X L X X X L X X X Tx WR Stat1 L = /MEM CYCDN H = ON H
                X X X H X X X L X X X X X X L Stat Req L = /MEM CYCDN H = ON H

OUTPIN 18       X X X H X X X H X X X L X X X Tx WR Stat1 L = ON H = MEM CYCDN H

OUTPIN 17       X X X H X H L X X X X X X X X Cnt Done H = /CLSN H = ON H
                X X X H X X L X X X H X X L X X Sel Tx CRC L = /CLSN H = /RES PTR L = ON H

OUTPIN 16       X X X H X X X H X X X L X X X X Tx WR Stat0 L = MEM CYCDN H = ON H
                X X X H X X X L X X X X L X X X Tx WR Stat1 L = /MEM CYCDN H = ON H

OUTPIN 15       X X X H X X X X X X L X X X X X RES PTR L = ON H
                X X X H X X X L X X X L X X X X Tx WR Stat0 L = /MEM CYCDN H = ON H

OUTPIN 14       X X X H H X L X X L X X X X X X CRC2 State L = Tx Frame H = /CLSN H = ON H
                L H X H X H X X X X X X X X X X Data State L = Cnt Done H = ON H = DTCR H
                X X H H X X X X X X X X X X X X RTRY H = ON H

OUTPIN 13       X L X H H X L X L X X X X X X X CRC1 State L = Tx Frame H = /CLSN H = ON H = /DTCR H
                X L X H L X L X X L H X X X X X CRC2 State L = /Tx Frame H = ON H = /RES PTR L = /CLSN H = /DTCR H

OUTPIN 12       L L X H X H L X X X X X X X X X Data State L = Cnt Done H = ON H = /CLSN H = /DTCR H
                X L X H X X L X L H X X X X X X CRC1 State L = /CRC2 State L = ON H = /CLSN H = /DTCR H
```

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REVISIONS		
CHK	CHANGE NO.	REV

DRN: Ken Sargent | CHK: D. Ken Sargent | DATE 08-NOV-82 | ENG: Neil Bloomberg | DATE 08-NOV-82 | DATE 08-NOV-82 | SCALE | LOCATION: | SHEET 1 OF 1

DSK:LNKTTM.T2P[4,27] 08-NOV-82 16:15 MEM: HIGHER ASSEMBLY: C-A-M7793-0-0

FIRST USED ON OPTION/MODEL: DEUNA

TITLE: DEUNA LINK MODULE PAL LISTINGS

SIZE	CODE	NUMBER	REV.
K	CS	M7793-0-TTM	A

PART NUMBER: 23-027K5-00

LOCATION: E36

DEVICE TYPE: PAL16R8
PIN NUMBER = SYMBOL TABLE:

1= CLK	8= CLSN H	15= En CRC L
2= Pre1 State L	9= MEM CYCDN H	16= Sel Tx Data L
3= Pre4 State L	10= GND	17= Len Req L
4= ON H	11= EN	18= Inc PTR L
5= Tx Frame H	12= Done Jam L	19= Res PTR L
6= CLSN Jam H	13= Jam L	20= VCC
7= Cnt Done L	14= Tx Active L	

NOTE: TXST3.PAL - (LNKL)

This program is the memory contents of the PAL logic used to form the transmit State machine. This PAL is used to provide discrete control signals to the LINK.

```
          |0|0|0|0|0|0|0|0|1|1|1|1|1|1|1|1|1|1|
PAL PINS: |2|3|4|5|6|7|8|9|2|3|4|5|6|7|8|9|

OUTPIN 19  L X H H X X X X X X X X X X X X Pre1 State L = Tx Frame H = ON H

OUTPIN 18  X X H X X X X X X X X X X X L Res PTR L = ON H

OUTPIN 17  X X H X X X X X X X X X X L X Inc PTR L = ON H
           X X H X X X X L X X X X L X X Len Req L = /MEM CYCDN H = ON H

OUTPIN 16  X L H H X X X X X X X X X X X Pre4 State L = Tx Frame H = ON H
           X X H X X X X X X L X L X X X Sel Tx Data L = Tx Active L = ON H

OUTPIN 15  X X H X X X L X X X X X L X X X Sel Tx Data L = /CLSN H = ON H

OUTPIN 14  L X H X X X X X X X X X X X X X Pre1 State L = ON H
           X X H X X H X X X H L X X X X X Tx Active L = /Jam L = /Cnt Done L = ON H
           X X H X L X X X X L L X X X X X Tx Active L = /CLSN Jam H = Jam L = ON H
           X X H X X X X X X L L X H X X X Tx Active L = Jam L = /Sel Tx Data L = ON H

OUTPIN 13  X X H X X X H X X H L X X X X X CLSN H = /Jam L = Tx Active L = ON H
           X X H X L X X X X L X X X X X X Jam L = /CLSN Jam H = ON H
           X X H X X X X X X L X X H X X X Jam L = /Sel Tx Data L = ON H

OUTPIN 12  X X H X H X X X X L X X L X X X Jam L = CLSN Jam H = Sel Tx Data L = ON H
```

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REVISIONS		
CHK	CHANGE NO.	REV

DRN Ken Sargent | DATE 08-NOV-82 | ENG. Neil Bloomberg | DATE 08-NOV-82
CHK'D Ken Sargent | DATE 08-NOV-82 | BOARD LOCATION: SHEET 1 OF 1
DSK:LNKTTN.T2P[4,27] 08-NOV-82 16:15 | NEXT HIGHER ASSEMBLY: D-UA-M7793-0-0
FIRST USED ON OPTION/MODEL: DELUNA

TITLE: DELUNA LINK MODULE PAL LISTINGS

SIZE	CODE	NUMBER	REV.
K	CS	M7793-0-TTN	A