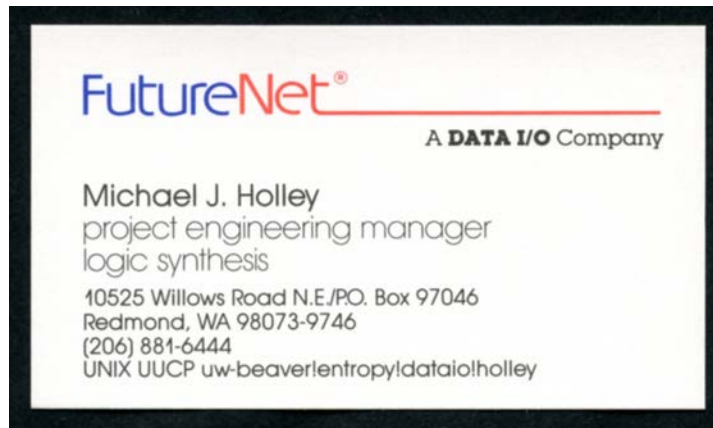FutureNet introduced the first schematic editor for the IBM PC in April 1983. The package included the DASH software (written in 8086 assembly code) and a monochrome graphics display card (640 by 350). Paul Page wrote the software and Bruce Gladstone designed the graphics board. Their previous company was called Futuredata and its product was microprocessor emulators. Futuredata was sold to GenRad in early 1979. FutureNet was an independent company located in Chatsworth CA when Date I/O acquired them in late 1984. Data I/O's ABEL group (I was in it) was merged into the FutureNet division but remained in Redmond WA. The Chatsworth location was closed in 1987 and several of their products were discontinued.

FutureNet made LSI Logic's gate array symbol library accessible to the DASH and created interfaces to LSI's production facilities in 1985. Xilinx adopted FutureNet as its preferred schematic editor and patterned the Xilinx Netlist Format (XNF) after the FutureNet format. FutureNet DASH was the most popular schematic editor and it sold for around $5000. Soon lower cost editors such as Orcad cut into FutureNet's sales. DASH sales were discontinued and the Windows based Engineering Capture System by the Cad/Cam Group replaced it in 1993.

I have uploaded some FutureNet brochures to Bitsavers.

http://bitsavers.org/pdf/futureNet/brochures/

I have an engineering version of DASH 6.1 from 1991 that doesn't have copy protection. It is running on a Windows 98 system in a DOS window and I can do screen captures.

First schematic (6809)

```
MODE
MENU
LINE
/1
ALPH
NEW
F   2
J   L
O   H
ATTR
COM
    0
SYMB

CELL

SIZE
du,P
612
440
XY
79
161
MOD
NO
ZOOM
1.00
MEMK
145
```

```
                        7400
                    1            3   COUNT
            E       2
                        7402
            Q       3            1   RAS

6809                7404
39  XTAL    A00  8   00      1       2
38  EXTAL   A01  9   01              7410
37  dRESET  A02  10  02          13          14
36  MRDY    A03  11  03      1            12  CAS
35  Q       A04  12  04      2
34  E       A05  13  05
33  dBREQ   A06  14  06          7404
5   BS      A07  15  07      1       2
6   BA      A08  16  08
40  dHALT   A09  17  09
2   NMI     A10  18  10
4   dFIRQ   A11  19  11
3   dIRQ    A12  20  12          7402
32  R/W     A13  21  13      2            1
            A14  22  14      3
            A15  23  15                       7402
            D00  31  0                    2       1   BE
            D01  30  1                    3
            D02  29  2
            D03  28  3    GND
            D04  27  4
            D05  26  5          7402
            D06  25  6    RW    2            1
            D07  24  7          3
                                              7402
            DATA                          2       1   WE
                                          3
            A                   GND
```

load m6809

Second schematic (PLD multiplexer)

```
MODE
MENU
LINE
/1
ALPH
NEW
F   2
J   L
O   H
ATTR
COM
    0
SYMB

CELL

SIZE
B,P
306
220
XY
153
19
MOD
YES
ZOOM
1.00
MEMK
180
```

```
42
    1
    2  AND3  OUT
    3
43                 56
    1                                Y0
    2  AND3  OUT    2   OR3  OUT
    3                3
44
    1
    2  AND3  OUT
    3
45
    1
    2  AND3  OUT
    3
46                 57
    1                                Y1
    2  AND3  OUT    2   OR3  OUT
    3                3
47
    1
    2  AND3  OUT
    3
48
    1
    2  AND3  OUT
    3
49                 58
    2  AND3  OUT    2   OR3  OUT      Y2
```

```
51  PLD01
    module PLD01;
    title '12 to 4 multiplexer'
    IC1 device 'P14H4';
    A0,A1,A2,A3 pin 1,2,3,4;
    B0,B1,B2,B3 pin 5,6,7,8;
    C0,C1,C2,C3 pin 9,11,12,13;
    Y0,Y1,Y2,Y3 pin 14,15,16,17;
    S1,S2       pin 18,19;

    A = [A3,A2,A1,A0]; B = [B3,B2,B:
    C = [C3,C2,C1,C0]; Y = [Y3,Y2,Y:
    SELECT = [S1,S2];

    TEST~VECTORS([ A , B , C ,SELEC:
    "SELECT A"  [ 9 , 15 , 6 ,  0
    "SELECT B"  [ 9 , 15 , 6 ,  1
    "SELECT C"  [ 9 , 15 , 6 ,  2
    "SELECT X"  [ 9 , 15 , 6 ,  3

    end
```