Eurocard bus systems

Microbus backplanes

Features

- PTH Eurocard backplanes designed for use with microprocessors
- Reliability of plated through holes
- Minimal crosstalk
- DIN 41612 connectors
- DIN 41494 cardframe compatible
- Choice of connector styles and pitches:
  3HP (15,24mm) for PCB's for hard wired daughter boards.
  4HP (20,32mm) for two level wirewrap daughter boards

96/96 Way Version

Ideal for high speed applications using 96/96 way connectors, screening is provided on row b between each signal track on the backplane and, via the connector, through onto the individual cards. Alternatively for slower applications the 96/96 way connector allows the use of a maximum of 84 separate signal lines by simply breaking the 0V commoning line in the end position. Using either of these methods input/output connections are generally made at the front end of the individual plug-in boards. If a 64/96 way connector is used on the system, the 0V screen is still a feature of the Microbus, with the added advantage of input/output connections being possible from the rear of the system.

When using 0V and two power rails, pin 1 and 32 on rows a, b and c are fully committed to 0V and commoned together at one end. Two separate Vcc planes are provided for dual voltage systems and are committed to pins 2 and 31 on rows a, b and c. If 0V and three power rails are required the same situation exists as for two power rails except that it is now necessary to convert 0V on pins 32 a, b and c to Vcc by simply cutting the 0V link on the extreme edge of the connector side of the backplane. Power onto the 0V and Vcc planes is made via plated through holes positioned beneath the connector fixing screws.

64/96 Way version

A low cost version of the Microbus backplane still with the reliability of plated through holes but restricted in use to only 64/96 way connectors.
The basic design is very simple, with pin 1 and 32 on rows a and c committed to 0V with a complete 0V screen over one side of the board. Pin 2 and 31 on rows a and c are committed to Vcc. This leaves 56 separate signal lines from pin 3 a and c to pin 29 a and c inclusive.

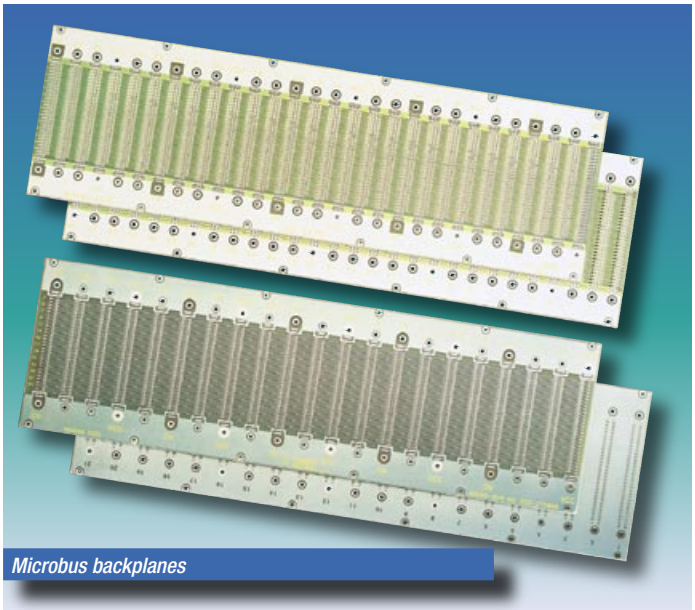
Crosstalk

Tests have been carried out on the 84HP version by feeding a 1MHz square wave signal (5ns rise and fall times), through a DIN 41612 connector and measuring the adjacent tracks at the opposite end.

Note: The Microbus motherboard was not terminated, which would have reduced the amplitude to the crosstalk and changed its shape considerably.

Microbus Backplanes — Ordering information

Conn. type	Conn. pitch (HP)	Size/Slots	Length	Order code
96/96	15,24 (3HP)	84HP/28	426,3 mm	**222-2470**
96/96	20,32 (4HP)			**222-22847**
64/96	15,24 (3HP)			**222-26025**
64/96	20,32 (4HP)			**222-27569**



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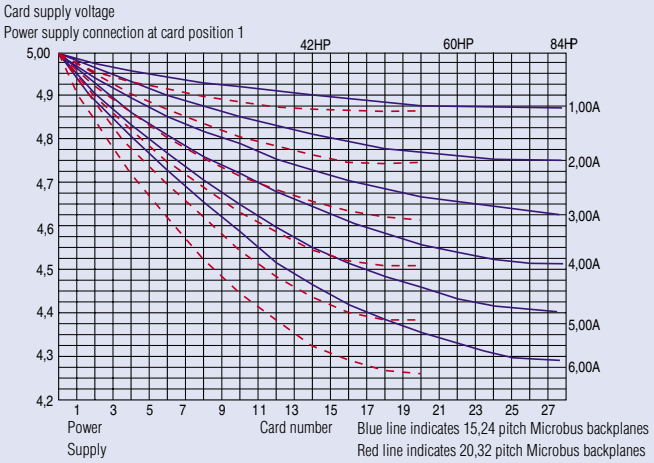
GRAPH TEST DATA

- Temperature: 25°C
- Busbar width: 20mm
- Copper thickness width: 70µm
- Microbus typical impedance: 220Ω measured @1MHz
- DIN 41612 connector types B and C
- Power track resistance: less than 25mΩ/m, typically 19mΩ/m
- Signal track resistance: less than 1,2mΩ/m, typically 0,97mΩ/m
- Calculations based on both Vcc and 0V rails being used with single voltage



Results

96/96 way Microbus

Worst case in row c (square wave fed on row a) amplitude of crosstalk was 15% with only 8% on adjacent tracks in the same row.

64/96 way Microbus

Worst case in row c (square wave fed on row a) amplitude of crosstalk was 35% of main signal reducing further away from the main signal line. Adjacent tracks on the same row were 25-30% amplitude.

Board specification

Dielectric Epoxy glass	BS4584 , EP-GC-Cu3 FR4
Nominal thickness	1,6mm
Base copper thickness	35µm
Finish	
Plated copper	25µm average
Tin lead	8µm maximum
Total	68µm

Note: bare boards are UL 94 V-0 recognised components file number E116551.
Bare boards are approved to BS9762