

**General Description**

The Multipoint Switching and Conferencing Unit (MUSAC) combines a space time switch unit based on the MTSC PEB 2045 and a powerful signal processor on one chip. The MUSAC enhances the capabilities of a PBX by supporting teleconferencing and multipoint data communication over voiceband channels. Digital signal processing techniques are used to implement the conferencing algorithms.

The MUSAC is designed to connect any of the 512 PCM input channels to any of 256 output channels. Any input channel up to a total number of 64 can be handled in 21 independent conferences simultaneously. Any conference combination from 3 subscribers in 21 conferences up to 64 subscribers in only one conference is possible. In order to ensure an acceptable speech quality and to reduce echo and "singing" problems, the input channels can be attenuated individually by 0, -3 dB, -6 dB or -9 dB and the output channels by 0 or -3 dB; additionally, input signals below a threshold programmable to four different levels are disregarded.

To lessen the risk of instability in multiparty conferences the voice signal from every second channel can be inverted so that disturbance signals in odd and even channels are subtracted from one another.

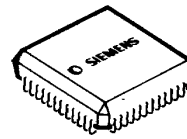
If more capacity is needed, several devices can be connected. By connecting the 16 PCM input lines in parallel to two MUSACs, a nonblocking switching matrix for 512 subscribers can be implemented: 128 input channels can be selected for up to 42 independent, simultaneous conferences. Due to the tristate capability of the MUSAC larger switches with conferencing capability can be easily formed.

All functions are programmed and controlled via an 8 bit standard  $\mu$ P interface (Motorola or Intel type).

**Features**

**Switching**

- Time/space switch for 2048-, 4096- or 8192-kbit/s PCM systems
- Switching of up to 512 incoming PCM channels to up to 256 outgoing PCM channels
- 16 input and 8 output PCM lines
- Different kinds of modes (2048, 4096, 8192 kbit/s or mixed mode)
- Configurable for a 4096 and 8192-kHz device clock
- Tristate function for further expansion and tandem operation
- Based on MTSC PEB 2045



**PL-CC-44**

Type	Package
PEB 2245-N	PL-CC-44 (SMD)

**Conference Mode**

- Up to 64 conference channels in any combination
- Up to 21 independent conferences simultaneously (3 subscribers)
- Programmable attenuation (0/3/6/9 dB) on each input channel
- Programmable attenuation (0/3 dB) on each output channel
- Programmable PCM level adaption (attenuation or amplification) of up to 64 channels
- Programmable noise suppression (four thresholds)
- Conference overflow handling
- Tone insertion capability
- A-law /  $\mu$ -law compatible
- Compatible with all kinds of PCM byte formats

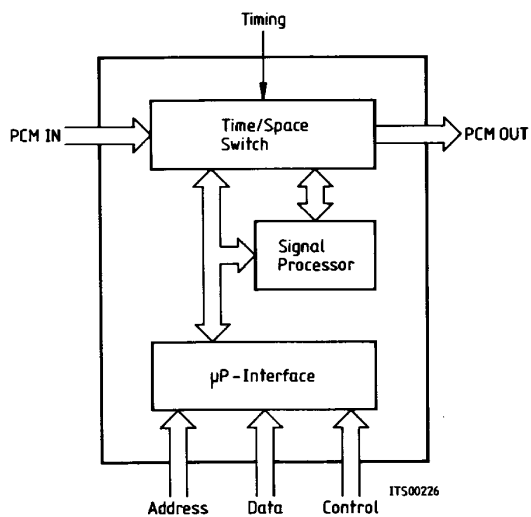
**Multipoint Switching**

- Multiple independent LAN's within one PBX
- Multiplexing of up to 64 channels
- 64-kbit/s channels

**General**

- 8 bit Motorola or Intel type  $\mu$ P interface
- Single + 5 V power supply
- Advanced low power CMOS technology  
TTL-compatible inputs/outputs

**Block Diagram**



**Time/Space Switch 16/16 for a Non-blocking 512-Channel Switch with Conferencing Capability**

