BASF 7/80 Central processor unit

System highlights

Main memory capacity up to 16 MB configurable in 2 MB steps

Up to 16 channels having max data-transfer rate 1,5 MB/sec., operating via three independent I/O-Processors

Hardware and software compatible with IBM/370 and 303x

High reliability and availability

Uses the state-of-the-art technologies
High internal processing speed of 40 ns

Enhanced price/performance ratio

Field-upgradable to BASF 7/80 AP or BASF 7/80 MP CPU's

High internal performance

The BASF 7/80 processor represents a growth system for upper-CPU-range users. A throughput rate confined to large systems is obtained by means of high internal processing power. The internal operating speed of 40 ns is achieved by using high-performance, high-reliability components in high packing densities. For effective control of information transfer between main memory, channels and the processor, the system provides powerful memory control with dynamic address translation, a very fast 64K buffer-memory and instruction buffering.

Flexible architecture

The system main memory can be configured in steps of 2 MB to a maximum 16 MB, thus offering good expansion possibilities without system modification. Memory access is eight-way interleaved. The Input/Output-Processors control the channels and regulate their access to main memory independently of the remaining system functions, leading to an enhanced throughput rate of the total system. 8 Controllers and 256 I/O-Units may be connected to each of 4 Multiplexor- and 12 Block-Multiplexor-Channels. Concurrent transfer-rate on all channels can reach up to 20 MB/second.

The I/O- and Service Processors also operate as with the Central Processor under independent microprogramme control. Microprogrammes enhance long-term system flexibility in several ways:
● they guarantee trouble-free change and ease of installation of new operating-system releases quickly and without system change
● new peripheral devices can easily be added to the microprogramme-controlled I/O-Processors without system change
● the microprogramme-controlled Service Processor facilitates effortless integration of future extensions to the control and diagnostic functions

Compatibility

The BASF 7/80 Central Processor Unit supports all current operating-systems for machines in this size-range (VM, OS/VS, MVS, SVS). Also, all IBM Program Products and compatible products from other suppliers can be implemented. Microprogrammes are also available for extended support of VM and MVS (Virtual Machine Assist and/370 Extended Facility).
BASF peripheral systems or compatible devices and systems from other manufacturers may be attached to the BASF 7/80 Central Processor Unit.

Configurability

● The main memory can be configured up to 16 MB
● Up to 16 channels can be operated via three I/O-Processors
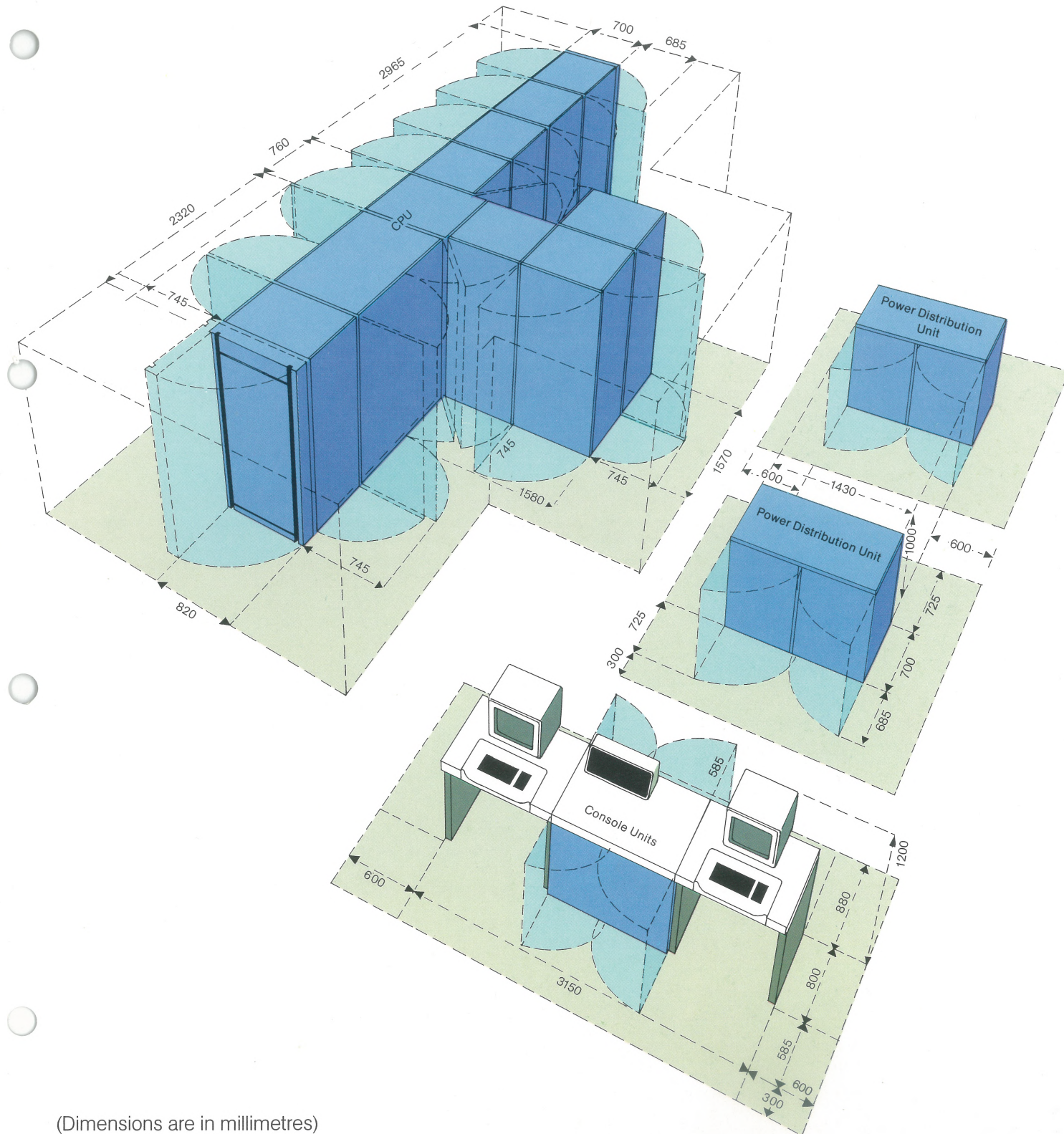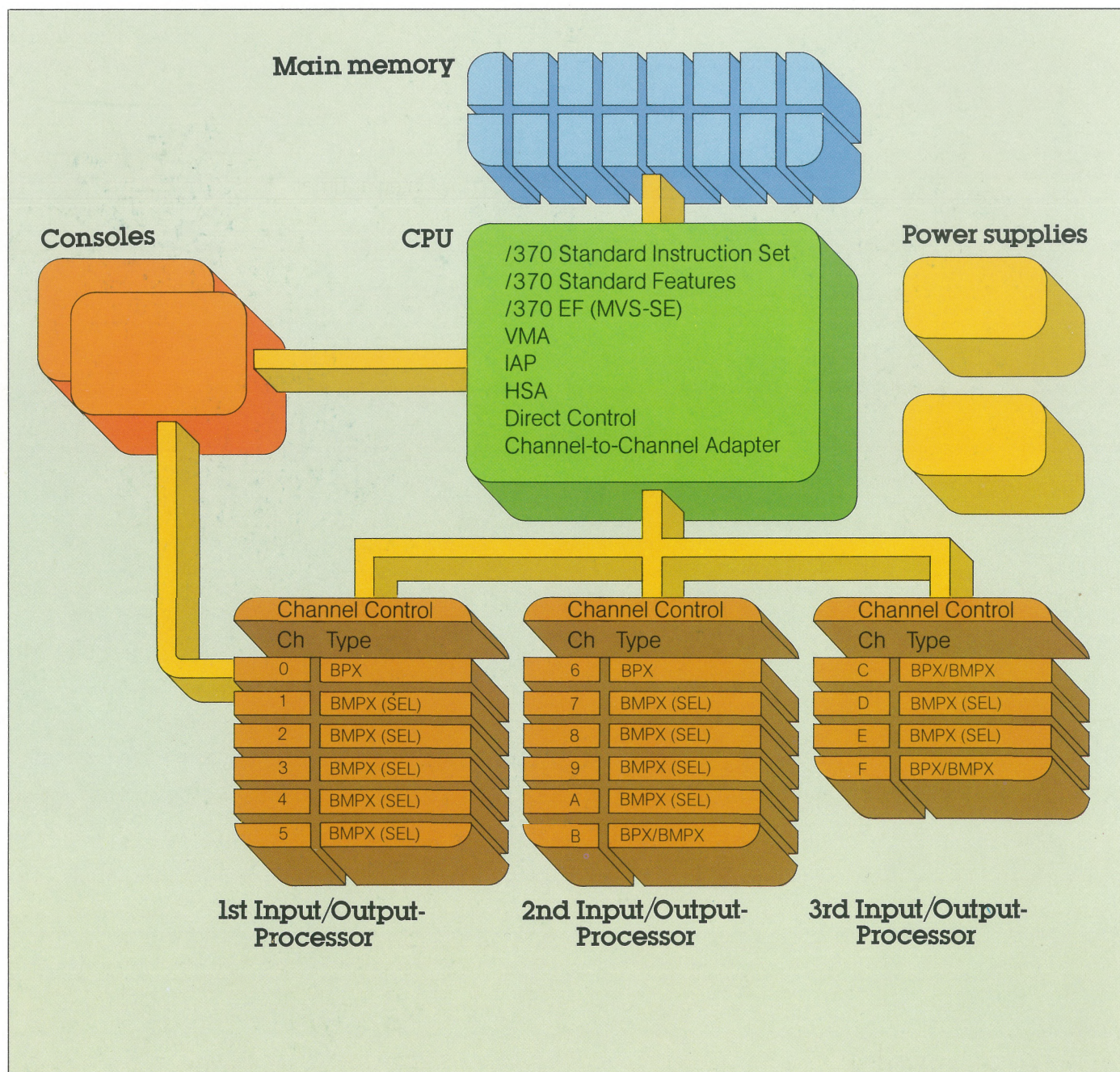● The BASF 7/80 can be field-upgraded to a BASF 7/80 AP or a BASF 7/80 MP CPU

Improved operating environment

Utilisation of the most modern Large Scale Integration circuitry and higher packing-densities reduces space requirements and affords very favourable levels of power consumption, heat output and cooling. The BASF 7/80 CPU is air-cooled. Any variations in voltage supply are continuously controlled and corrected by the power distribution unit. An auxiliary motor-generator is not required.

Service

BASF's Customer Engineering is always on call. In addition to hardware and software maintenance, BASF's service activities include both consultancy and support for system-generation and on-going operations.

Main memory

Consoles

CPU

/370 Standard Instruction Set
/370 Standard Features
/370 EF (MVS-SE)
VMA
IAP
HSA
Direct Control
Channel-to-Channel Adapter

Power supplies

Channel Control	
Ch	Type
0	BPX
1	BMPX (SEL)
2	BMPX (SEL)
3	BMPX (SEL)
4	BMPX (SEL)
5	BMPX (SEL)

1st Input/Output-Processor

Channel Control	
Ch	Type
6	BPX
7	BMPX (SEL)
8	BMPX (SEL)
9	BMPX (SEL)
A	BMPX (SEL)
B	BPX/BMPX

2nd Input/Output-Processor

Channel Control	
Ch	Type
C	BPX/BMPX
D	BMPX (SEL)
E	BMPX (SEL)
F	BPX/BMPX

3rd Input/Output-Processor

Power Distribution Unit

Console Units

(Dimensions are in millimetres)

BASF 7/80 Central processor unit

Technical data

Processor

Cycle Time	40 nanoseconds
Buffer Memory	64 kilobytes

Main memory

Size (MB = Megabytes)	4–16, 6 standard
Expansion steps (MB)	2
Technology	16K N-MOS
Datawidth per cycle (bytes)	8
Interleaving	Eight-way

Channels

I/O-Processors	2 standard, 3 maximum
Byte Multiplexor Channels	2 standard, 4 maximum
BPX data-rate	100 KB/sec.
Block Multiplexor Channels	8 standard, 12 maximum
BMPX data-rate	1,5 MB/sec.
Total Channel Throughput	20 Mbytes/second

Physical data

Area	10,8 sq. m.
Weight	5305 kg.
Power consumption	64,0 kVA
Heat output	42,000 kcal/hr

Standard features

Normal mode/Extended Control mode
Dynamic Address Translation (DAT)
Indirect Channel Data Addressing
Program Event Recording (PER)
Monitoring
Byte-oriented Operand
Instruction Retry
Machine Check Logout
Error Checking and Correction
CPU Timer
Storage Protection
Store Status
Clock Comparator
Time-of-Day Clock
Interval Timer
High-speed Arithmetic
Floating Point
Extended Precision Floating Point
Virtual Machine Assist VMA
Double Console Unit
Console Printer Adapter
Two Power Distribution Units (Transformer and Motor-Generator)
Standard Colour: Blue

Optional features

Control Storage Extension
Two-byte Interface
Channel-to-Channel Adapter
Two-Channel Switch for the Console Unit
Direct Control
Enhanced Sub-channel
Extended Functions (EF)
Third I/O-Processor
Clock Feature for the Console Unit

BASF