

AB181E-20

Fast 8-bit OCA Processor
for General Purpose,
Protocol Engines and
Robotics Applications



A B S e m i c o n

PRODUCT SPECIFICATIONS

- ☐ 20Mhz CPU Clock Frequency - 40Mhz Bus
- ☐ Many instructions executed in a single clock cycle using industry standard instruction set
- ☐ Versatile memory controller
- ☐ Fixed point math accelerator
- ☐ 100-pin PQFP package
- ☐ Low Power consumption
- ☐ Single (3.3v) or dual voltage (3.3/5v) C-MOS Technology
- ☐ 2 x On chip Async serial I/O, Sync Serial I/O, 2 x DMA Controller, 2 x 16bit timers



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Specification of this device is subject to change

Version 1

AB181E-20

A B S e m i c o n

The AB181E-20 is a fast, state-of-the-art microprocessor that uses AB Semicon's unique OCA (One Cycle Architecture) technology. The AB181E-20 is ideal for both 5V and 3.3V designs and is code compatible with the popular Z80, Z180 and HD 64180 instruction sets.

Driven by a 5Mhz crystal oscillator and Phased Locked Loop (PLL), the Processor generates the on chip 40Mhz and 20Mhz clocks. The address bus is connected to the outside world giving a 20bit externally addressable RAM or ROM space. Two DMA channels Memory to Memory, Memory to I/O and I/O to Memory are available. The processor wakes up in 3 Wait State Mode allowing a lower speed external ROM to be used. The AB181E-20 also has a fixed point 32-bit math accelerator that can be used in applications involving feedback control systems where it is useful in constructing PID loop filters.

The AB181E-20, running with the crystal oscillator, will execute code with 3 times the speed of a 33MHz 64180 MPU, and more than 50 times faster than a traditional Z80 in typical applications due to the ability to execute each instruction in fewer clock cycles. Many applications will see far greater increases in speed, especially if extensive use is made of the block-move instructions.

Example: in an application where the existing processor is already fully utilised, this low cost microprocessor can take over all of the work handling Network Protocol Stacks and supplying the raw data to the Printer Controller. It can also manage the SNMP data to and from the Printer Controller or NPMP™ management information without taking up any of the main Printer Controller's time.

APPLICATIONS

- ROBOTICS CONTROL
- DIGITAL SIGNAL PROCESSING (UP TO 500kHz)
- POSITION/MOTION CONTROL SYSTEMS
- NETWORK CONNECTED DEVICES
- DIGITAL CAMERAS
- CELL PHONES
- AUTOMOTIVE
- MOTOR CONTROLLERS
- PROTOCOL ENGINE
- TELEPHONE SYSTEMS
- ACCESS CONTROL

