

Am9520/Am9521/AmZ8065

Burst Error Processor

DISTINCTIVE CHARACTERISTICS

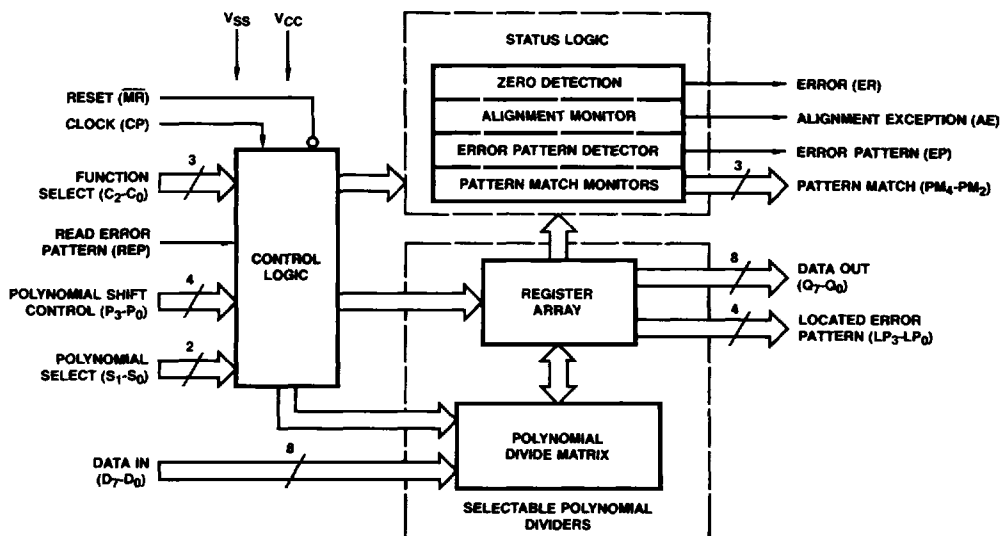
- **Provides for detection and correction of burst errors**
Detects errors in serial data up to 585K bits long. Allows correction of error bursts of up to 12 bits.
- **High-Speed Operation**
Effective data rates up to 20 Mbits/second for Am9520/Am9521/AmZ8065 and 30 Mbits/second for -1 versions. Fast enough for high-performance hard and soft disk systems.
- **Selectable Industry-Standard Polynomials**
35-bit and 32-bit polynomials on Am9521. Am9520/AmZ8065 additionally has popular IBM 56-bit and 48-bit versions.
- **Three correction algorithms provide flexibility**
Full-period clock-around method for conforming to current practices. Chinese remainder theorem reduces correction time by orders of magnitude. Reciprocal polynomial makes correction possible with 48-bit code.
- **Designed for use in both microprogrammed and microprocessor disk controller systems**
Device complements both AmZ8000 and Am2900 microprocessor families and can also be used with other microprocessors.

GENERAL DESCRIPTION

The Burst Error Processor (BEP) provides for error detection and correction for high-performance disk systems and other systems in which high-speed serial data transfer takes place. As data density and transfer rates increase in both hard and floppy disks and other storage media, error detection and correction become increasingly important. The BEP is an LSI circuit that facilitates the most common error detection and correction schemes accommodating data streams of up to 585K bits at up to 20M bits/second effective data rate.

The BEP provides a choice of four standard polynomials, including the popular 56-bit and 48-bit versions, to satisfy a broad range of applications. The device divides the data stream by the selected polynomial using the rules of algebra in polynomial fields. The resulting remainder is the check word, which is then appended to the data for writing on the disk as a record. When the record is read back, the BEP computes the syndrome for data validation. If an error is detected, the location and pattern of this burst in the data stream is determined for corrections.

BLOCK DIAGRAM

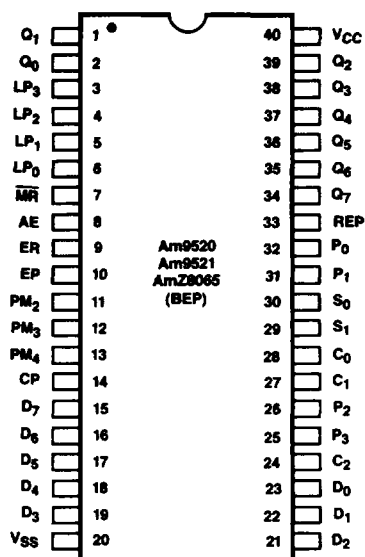


BD003300

CONNECTION DIAGRAM

Top View

D-40

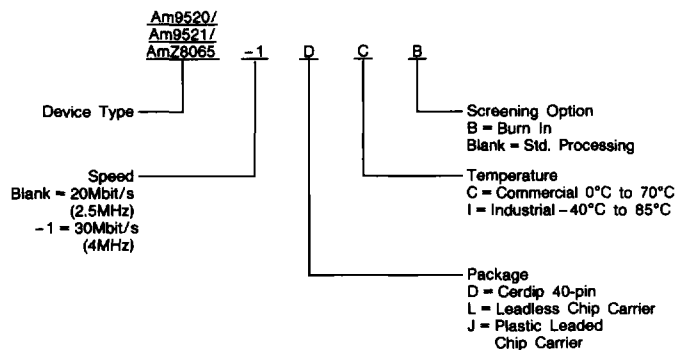


CD005121

Note: Pin 1 is marked for orientation

ORDERING INFORMATION

AMD products are available in several packages and operating ranges. The order number is formed by a combination of the following: Device number, speed option (if applicable), package type, operating range and screening option (if desired).

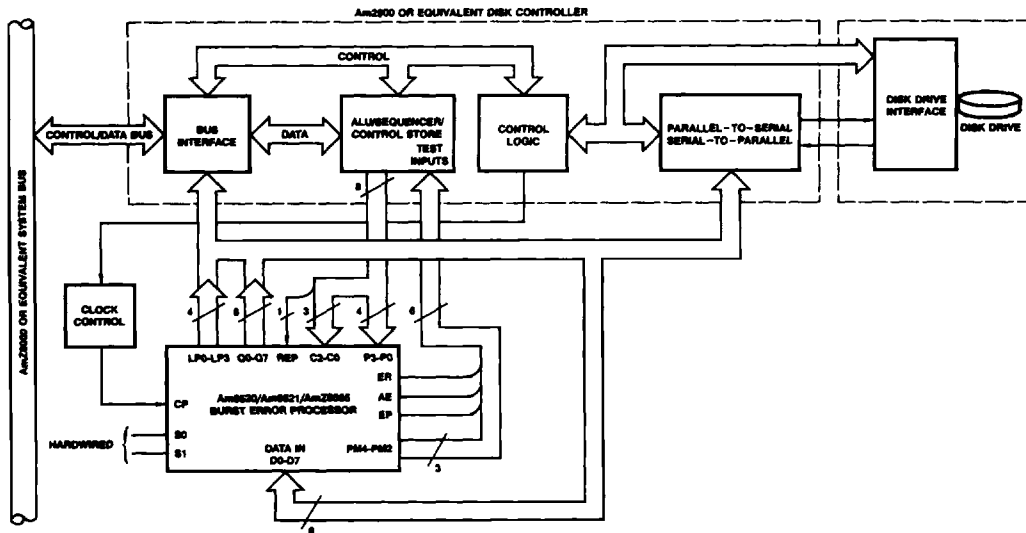


Valid Combinations		
	20Mbit/s Data Rate	30Mbit/s Data Rate
Am9520/ Am9521/ AmZ8065	DC, DCB, DI, DIB, LC,	-1DC, -1DCB, -1DI, -1DIB, -1LC, -1LCB, -1LI, -1LIB

Valid Combinations

Consult the local AMD sales office to confirm availability of specific valid combinations, check for newly released valid combinations and/or obtain additional data on AMD's standard military grade product.

TYPICAL APPLICATION DIAGRAM



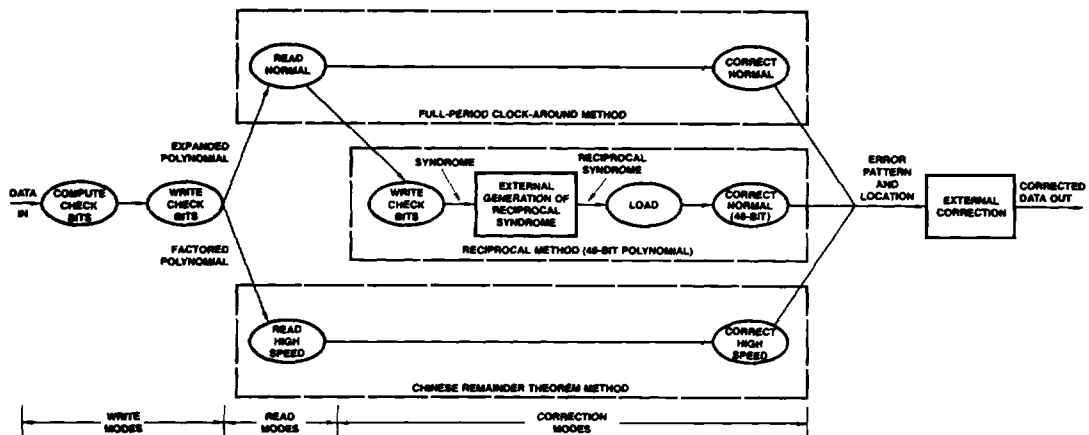
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Figure 6. Am9520/Am9521/AmZ8065 Burst Error Processor

APPLICATIONS

The BEP is designed for use in both microprogrammed and microprocessor disk controller systems. Figure 6 shows the BEP interfacing to an Am2900 bipolar bit-slice microprogrammed disk controller. The BEP can be interfaced to microprocessor-driven disk controller systems as well.

The controller in these designs would implement the control and clocking signals for the BEP necessary to execute the write, read and correction functions for a given polynomial selection. The operational flow for the methods available is shown in Figure 7.



PF001190

Figure 7. BEP Operational Flow Diagram