NEC Electronics Inc.

μPD72123
Advanced Graphics Display Controller II

Description

The μPD72123 advanced graphics display controller II (AGDC II) is an enhanced version of the μPD72120 AGDC. It executes bit map graphics processing at high speed as a peripheral to a host CPU, reducing the host's workload and improving processing efficiency.

Features

- Compatible with μPD72120 AGDC
- Higher speed drawing
  - 10-MHz drawing clock
- Large command set
  - Line drawing with graphics pen
  - Painting arbitrary or defined areas with tiling patterns
  - Enlarge, shrink, and arbitrary-angle rotate copy commands
  - Data transfer between system and display memory
- Flexible system configurations
  - Drawing can be performed on display or system memory space
  - Data bus can be used with most microprocessors
  - Independent drawing and display clocks
  - VRAM control
  - Laser printer interface controls
- Versatile drawing environment
  - Pipelined processing
  - Two X-Y coordinate systems can be defined
  - Conversion between one-dimensional and two-dimensional data arrays
  - Clipping/picking
- Improved painting performance
- Bit search command
- Vertical blank interrupt
- Bit reversal
- Drawing wait/retry timing
- CMOS technology
- Single + 5-volt power supply

Comparison of μPD72123 and μPD72120

Item	μPD72123	μPD72120
Clock frequency	10 MHz	8 MHz
X-Y coordinate systems	Two	One
Line pattern	32 bits	16 bits
Raster operations (no. of operands)	Three	Two
Tiling pattern (horizontal)	32 bits	16 bits
Trapezoid fill (lower line select)	✓	—
Paint speed	Increased	—
Paint stack area	Decreased	—
Graphics pen	✓	—
Bit search	✓	—
Vertical blank interrupt	✓	—
Laser printer control	✓	—
Drawing busy output signal	✓	—
Wait drawing cycle	✓	—
Retry drawing cycle	✓	—
Bit reversal	✓	—

Ordering Information

Part Number	Package
μPD72123GJ-5BG	94-pin plastic QFP
L	84-pin PLCC

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Block Diagram