



## 4.5M and 9M Network Search Engine (NSE) with QDR™ Interface

**Product Brief**  
**IDT75K52134**  
**IDT75K62134**

**To request the full datasheet, please contact your local IDT Sales Representative or call 1-831-754-4555**

### Introduction

Evolving network speeds require critical functions such as forwarding and classification to migrate towards dedicated hardware devices. The Network Search Engine (NSE) based on IDT's CAM (Content Addressable Memory) technology accelerates search functions required for applications such as Access Control Lists (ACL), Flow Caching and Forwarding.

### NSE Features

- ◆ 128K x 72 (9M) or 64K x 72 (4.5M) Data and Mask cells
- ◆ Full Ternary Content Addressable Memory
- ◆ Advanced Database Management
  - Selectable Databases
  - Programmable Width per Database
  - Lookup widths from 32 to 576 bits
  - Only the selected Database is powered
- ◆ Lookup Instructions
  - Standard Lookup
  - Multi-Hit Lookup
  - Multi-Database Lookup
  - Re-Issue Multi-Database Lookup
- ◆ Maintenance Features
  - Aging
  - Multi Hit Invalidate
  - Learn per Database
- ◆ Multi-Context support
- ◆ Pool of (72-bit) Global Mask Registers (shared across contexts)
- ◆ In-Band Control and Management
- ◆ Associated Data SRAM is supported through a glue-less ZBT® interface
- ◆ Lowest Power per Application
- ◆ Synchronous Pipeline Operation
- ◆ Boundary Scan JTAG Interface
- ◆ 1.2V Core Supply
- ◆ 1.5V HSTL I/O Supply
- ◆ 2.5V I/O Supply for ZBT® Associated Data SRAM
- ◆ 35mm x 35mm BGA Package

### Device Description

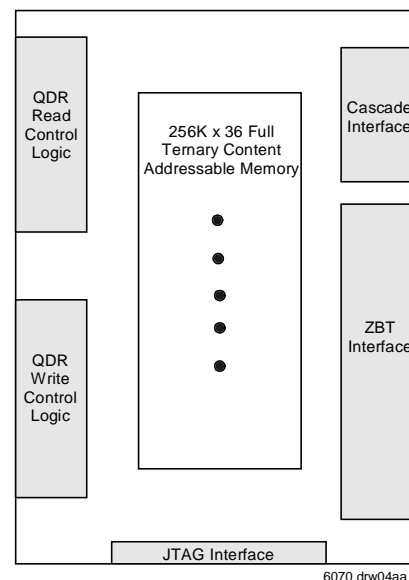
The NSE with a single QDR™ (Quad Data Rate) interface is intended to work with any NPU having a QDR™ look aside interface. Multiple devices including the QDR™ NSE can be connected to the same QDR™ interface. Each QDR™ NSE device may be point-to-point expanded up to eight NSE devices.

### External Interfaces

The following external interfaces are supported by the QDR™ NSE device

- ◆ Single QDR™ NPU interface
  - QDR™ Clock Frequency up to 250 MHz
  - Supports QDR™ burst of 2
  - Echo clocks supported (CQ,  $\overline{CQ}$ )
- ◆ Point-to-Point Cascading Interface
  - Up to eight NSEs can be cascaded using this scheme
- ◆ Associated Data SRAM with standard ZBT® Interface
- ◆ Boundary Scan JTAG Interface (IEEE 1149.1)

Figure 1.0 QDR™ NSE External Interfaces



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