



## 4.5M and 9M Network Search Engine (NSE) with LA-1 Interface

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

**To request the full datasheet, please contact your local IDT Sales Representative or call 1-800-345-7015**

### Introduction

As part of the IDT IP Co-Processor product family, IDT delivers high performance, feature-rich, easy-to-use, Network Search Engine (NSE) products. Using CAM (Content Addressable Memory) technology, IDT NSE products accelerate search functions for Access Control Lists (ACL), Flow Caching, and forwarding to improve performance in next generation networking equipment.

### Device Description

The NSE with a single LA-1 interface is intended to work with any NPU having a LA-1 look aside interface. Multiple devices including the LA-1 NSE can be connected to the same LA-1 interface. Each LA-1 NSE device may be point-to-point expanded up to eight NSE devices.

### NSE Features

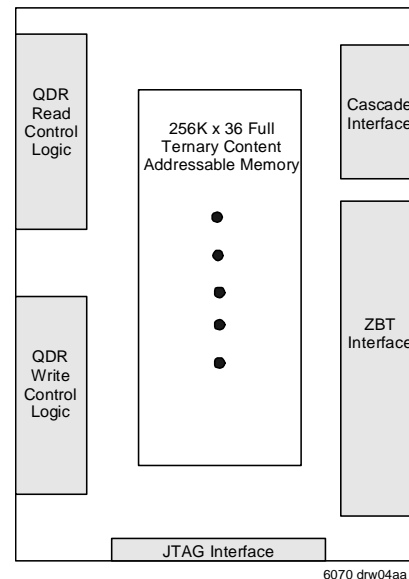
- ◆ 128K x 72 (9M) or 64K x 72 (4.5M) Data and Mask cells
- ◆ Full Ternary Content Addressable Memory
- ◆ Advanced Database Management
  - Selectable Databases
  - Programmable Width per Database
  - Lookup widths from 32 to 576 bits
  - Only the selected Database is powered
- ◆ Lookup Instructions
  - 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

### External Interfaces

The following external interfaces are supported by the LA-1 NSE device

- ◆ Single LA-1 NPU interface
  - LA-1 Clock Frequency up to 250 MHz
  - Supports LA-1 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 LA-1 NSE External Interfaces



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