

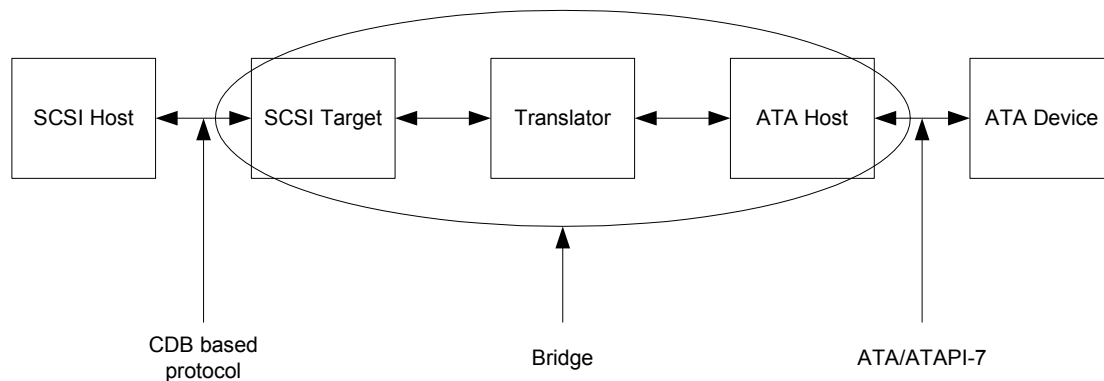
# Command Mapping Format

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This is a proposal on how to present a command mapping from SCSI CDB's to an ATA/ATAPI-7 device. This proposal is for a table format that provides the ability to directly translate, emulate, or not implement each field of a SCSI CDB. This is a sample using READ(12).

## 1 Overview

A translator has 3 parts as diagramed below:



The bridge is composed of a SCSI Target, an ATA Host, and a translator. The translator receives CDB's, converts them to ATA/ATAPI-7 commands, and issues them to the device using the ATA Host. The SCSI Target may be conceptual, possibly only existing in software. The ATA Host shall be a standard SATA or PATA ATA/ATAPI-7 compliant host.

## 2 Keywords/Glossary

### 2.1 Not Implemented

The SCSI field has no matching ATA capability and Emulation capability is not specified in this standard. For example, ATA does not expose an interface for controlling non-volatile cache. Therefore, fields associated with controlling non-volatile cache are not implemented.

### 2.2 Emulated

Emulated means that acceptable functionality of a SCSI field can be achieved, but the translator has to help. This help may be in the form of:

1. Issuing multiple ATA commands to complete the CDB
2. Mapping information from existing ATA commands and reformatting the data for SCSI, possibly supplementing the data with additional data from the translator
3. Storing or providing additional information or functionality not found in the ATA device.

For example, the SCSI Inquiry command has a field for Product Identification that is 16 bytes long whereas ATA has a Model Number that is 40 bytes long.

## 2.3 Implemented

The SCSI field has a matching ATA capability. For example, the SCSI READ(10) command has a 32 bit address, and a 16 bit transfer length. This enables the translator to, under the right conditions, to issue a single ATA READ DMA EXT command without providing additional information or capability.

## 2.4 Bridge

This bridge is the combination of a SCSI Target, a translator, and an ATA Host.

# 3 Command Set

## 3.1 READ (12)

OP Code	Description	Pages	Field	Type	Description
A8	READ(12)				Issue ATA READ DMA EXT command (25h)
			RDProtect	N	
			DPO	N	
			FUA	E	See clause 3.1.1
			FUA_NV	E	See clause 3.1.2
			LBA	I	See clause 3.1.3
			Transfer Length	E	See clause 3.1.4
			Group Number	E	See clause 3.1.5
Types - N - Not Implemented E - Emulated I - Implemented					

### 3.1.1 FUA

When the FUA bit is set to one, the host is requesting that the drive cache be bypassed for this read command. The bridge shall issue FLUSH CACHE EXT (EAh) prior to issuing the ATA READ DMA EXT command.

### 3.1.2 FUA\_NV

When the FUA\_NV bit is set to one, the host is requesting that the volatile drive cache be bypassed for this read command. The bridge shall issue FLUSH CACHE EXT (EAh) prior to issuing the ATA READ DMA EXT command. ATA devices do not have standard mechanisms for differentiating between volatile and non-volatile cache.

### **3.1.3 LBA**

The LBA field is a 32 bit value and the ATA READ DMA EXT command accepts up to 48 address bits. Bits 0-31 of the LBA field map to ATA LBA bits 0-31. ATA bits 32-47 shall be set to zero.

### **3.1.4 Transfer Length**

The Transfer Length is a 32 bit field.

If bits 16-31 are 0 then READ(12) maps to a single ATA READ DMA EXT command. Bits 0-15 are the sector count, bits 16-31 are ignored.

If bits 16-31 are not 0 then READ(12) maps to multiple ATA READ DMA EXT commands. The bridge shall issue as many ATA READ DMA EXT commands as necessary to transfer the amount of data requested in Transfer Length. This could result in a maximum of 65535 ATA READ DMA EXT commands being generated. If FUA or FUA\_NV are set to 1, FLUSH CACHE EXT need only be issued once.

### **3.1.5 Group Number**

There are no ATA commands to provide this capability. However, the translator can group attributes based on group number. This information can be stored in the translator and then returned when the host requests the data.