To: X3T9.2 Members
Subject: Small Form Factor
Date: October 9, 1992
From: Dal Allan

As per the recommendation of the September working group, the following is the proposal for an Informative Annex to be added to the draft proposed ATA standard.

**Annex *: Small Form Factor Configurations**
(informative).

This annex describes the connector-connector mating alternatives for disk drives of ≤ 2 1/2". This information has been developed by the Small Form Factor (SFF) Committee, an industry ad hoc group.

In an effort to broaden the applications for small form factor disk drives, a group of companies representing system integrators, peripheral suppliers, and component suppliers decided to address the issues involved.

A primary purpose of the SFF Committee was to define the external dimensions of small form factor disk drives so that products from different vendors could be used in the same mounting configurations.

The restricted area, and the mating of drives directly to a motherboard required that the number of connectors be reduced, which caused the assignment of additional pins for power. Power is provided to the drives on the same connector as used for the signals, and addresses are set by the receptacle into which the drives are plugged.

The 50-pin connector that has been widely adopted across industry for SFF drives is a low density 2mm connector which has no shroud.

***.1 44-pin Signal Assignments**

The signals assigned for 44-pin applications are described in Table *-1, and the 50-pin connector is described in Figure *-1.

**44-pin Signal Assignments for ATA**

The first four pins of the connector plug located on the drive are not to be connected to the host, as they are reserved for manufacturer's use. Pins E, F and K are keys, and are removed.

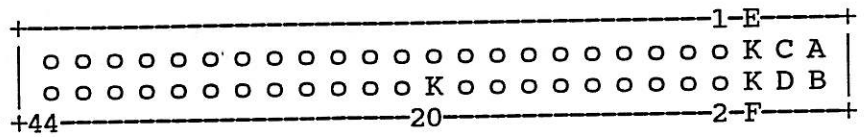


**TABLE *-1 SIGNAL ASSIGNMENTS FOR ATA**

| | Signal Name | Connector Contact | Conductor | | Connector Contact | Signal Name | |
|---|---|---|---|---|---|---|---|
| | Vendor Unique | A | | | B | Vendor Unique | |
| | Vendor Unique | C | | | D | Vendor Unique | |
| | (keypin) | E | | | F | (keypin) | |
| | RESET- | 1 | 1 | 2 | 2 | Ground | |
| | DD7 | 3 | 3 | 4 | 4 | DD8 | |
| | DD6 | 5 | 5 | 6 | 6 | DD9 | |
| | DD5 | 7 | 7 | 8 | 8 | DD10 | |
| | DD4 | 9 | 9 | 10 | 10 | DD11 | |
| | DD3 | 11 | 11 | 12 | 12 | DD12 | |
| | DD2 | 13 | 13 | 14 | 14 | DD13 | |
| | DD1 | 15 | 15 | 16 | 16 | DD14 | |
| | DD0 | 17 | 17 | 18 | 18 | DD15 | |
| | Ground | 19 | 19 | 20 | 20 | (keypin) | |
| | DMARQ | 21 | 21 | 22 | 22 | Ground | |
| | DIOW- | 23 | 23 | 24 | 24 | Ground | |
| | DIOR- | 25 | 25 | 26 | 26 | Ground | |
| | IORDY | 27 | 27 | 28 | 28 | PSYNC:CSEL | |
| | DMACK- | 29 | 29 | 30 | 30 | Ground | |
| | INTRQ | 31 | 31 | 32 | 32 | IOCS16- | |
| | DA1 | 33 | 33 | 34 | 34 | PDIAG- | |
| | DA0 | 35 | 35 | 36 | 36 | DA2 | |
| | CS1FX- | 37 | 37 | 38 | 38 | CS3FX- | |
| | DASP- | 39 | 39 | 40 | 40 | Ground | |
| * | +5V (Logic) | 41 | 41 | 42 | 42 | +5V (Motor) | * |
| * | Ground (Return) | 43 | 43 | 44 | 44 | TYPE- (0=ATA) | * |

* Pins which are additional to those of the 40-pin cable.

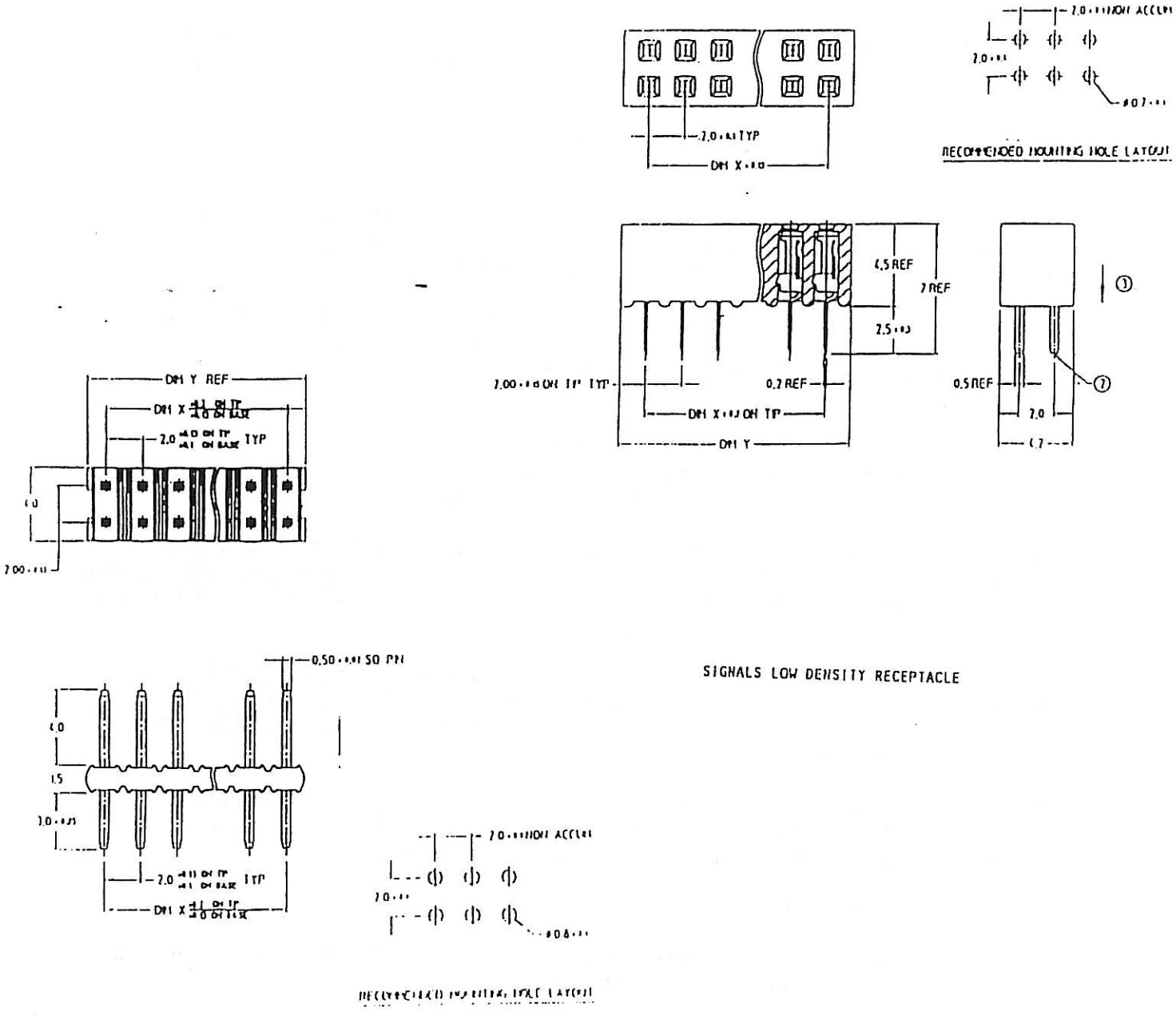


**FIGURE *-1: 50-pin Connector**