

# Release Notes

## TTM418 Version 1.0

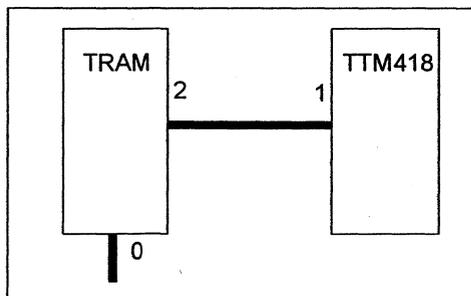
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### 1 Introduction

The TTM418 from Transtech is designed to act as a direct replacement for the now obsolete IMSB418 from SGS Thompson. Functionally the TTM418 is exactly the same as the IMSB418 though because of the higher density of flash memory some of the IMSB418 functionality is not support by the TTM418. This release note is written to be used in conjunction with the IMSB418 manual however enough information is given within this release note for the user to operate the TTM418.

### 2 Test programs

The TTM418 has preprogrammed into the flash memory a "hello world" programme. It is therefore possible to place a TTM418 onto a transputer motherboard with a TRAM and run lserver as a confidence test.



With the above configuration on a Transputer motherboard the TTM418 will boot the TRAM with the hello world program. To service the host I/O type:

```
c:\> iserver /sr /ss
```

The hello world output from the booted TRAM will appear on the screen.

### 3 Modes of Operation

The TTM418 has three modes of operation which are determined by jumpers J5 and J6.

J5	J6	Mode
remove	remove	bootstrap
fit	remove	transparent
remove	fit	undefined
fit	fit	auto prog

**Table 1: Mode selection jumpers**

#### 3.0.1 Transparent mode:

This is functionally the same as for the IMSB418. This mode allows the TTM418 to be placed within a network of transputers and to be transparent within that network for link communications on the links defined by J1 to J4.

#### 3.0.2 Auto Program Mode:

This mode is functionally identical to that of the IMSB418. It allows the TTM418 to have a program loaded into it exactly as a program would be loaded onto a transputer network. The TTM418 can then be used in bootstrap mode to download that programme to boot a transputer network. The time delays suggested by SGS Thomson for allowing the module to erase itself can be reduced from the server.

### 3.0.3 Bootstrap Mode:

The TTM418 having a 256K bytes of memory means that it can effectively replace four IMSB418s. For this reason there is no requirement for the TTM418 to support daisy chaining and all the error messages and protocol associated with the IMSB418.

In bootstrap mode the TTM418 can be used to boot a transputer network with the contents of the flash memory, and after booting the TTM418 will respond to commands on its links. These commands allow the TTM418 to be used as a temporary storage device. The following commands are supported:

**Table 2: Summary of Programming Protocol**

Command	Format
Write boot packet	BYTE `b'; INT32 count; [count] BYTE array
Write config packet	BYTE `c'; INT32 count; [count]- BYTE array
Read block	BYTE `r'; INT32 address; INT32 count
Write block	BYTE `w'; INT32 address; INT32 count; [count]- BYTE array
Query status	BYTE `s'
Query firmware version	BYTE `v'; INT16 n
Reboot target	BYTE `x'
Erase device *	BYTE `e'; INT16 device

\* NB The flash devices used on the TTM418 contain 16 off 16K pages therefore the command is functionally identical in operation to that used on the IMSB418 but actually erases a 16K page within the device rather than a whole device.

## 4 Link select Jumpers

The firmware of the TTM418 requires the user to select one or two of the transputer links for various functions. The selection is made using various combinations of jumpers J1-J4. The jumpers are used

in combinations of two. J1 and J2 form one pair with J3 and J4 making up the second. The following table illustrates the use of the link select jumpers.

**Table 3: Link selection Jumpers**

Link	J1/J2 Link	J3/J4 Link
0	--	--
1	J1 -	J3 -
2	- J2	- J4
3	J1 J2	J3 J4

**Example:** To select link 2 as the J1/J2 link, fit J2 and remove J1 For more information as to the function of these links please refer to the IMSB418 User Guide. The J1/J2 link is normally connected to the target system and the J3/J4 link is either connected to a development host, or is the network configuration link.

**NB: Please note that under no circumstances should jumper 7 be fitted to the TRAM**