TECHNICAL NOTE TN-1006

Tait Orca Error Codes

12 April 2005

Applicability   This technical note applies to all Tait Orca product.

1.   Introduction

This document is designed to provide support for servicing and fault diagnosis of Tait Orca radio product.

Tait radios have an inbuilt software diagnostic tool that will indicate error codes, if there is a failure in the software or hardware platforms.

When a system error occurs, normal operation of the radio ceases, and the software then enters an error mode to display the error number on the front panel.

Error codes can also be viewed in Terminal application format (via serial interface) if appropriate.

It should be noted that system errors are reported out of serial port as Cnn for software errors, and Xnn for hardware errors. (Where nn = error number)

(Refer to TN -1011 Terminal Application operation for more information)

Outlined below is code numbering and description for system errors.

It should also be noted that error codes can occur for any number of reasons, therefore no suggestions are provided as to what the specific cause of any given error may be.

2.   Code Definitions

General:

HEAP_OVERLAP_ERROR:	ERROR 1
HEAP_EXHAUSTED_ERROR:	ERROR 2
INVALID_HEAP_ADDRESS_ERROR	ERROR 3
INVALID_TASK_NUMBER_ERROR:	ERROR 4
INVALID_TIMER_NUMBER_ERROR	ERROR 5
INVALID_TIME_ERROR:	ERROR 6
INVALID_MESSAGE_CATEGORY_ERROR:	ERROR 7
INVALID_MESSAGE_PATH_ERROR:	ERROR 7
INVALID_MESSAGE_CODE_ERROR:	ERROR 8
INVALID_MESSAGE_TYPE_ERROR:	ERROR 8
SOFTWARE_INTERRUPT_ERROR:	ERROR 9
INVALID_QUEUE_NUMBER_ERROR:	ERROR 10
INVALID_USER_CHAR_ERROR:	ERROR 11
INAPPROPRIATE_TASK_TYPE_ERROR:	ERROR 12
ILLEGAL_OPCODE_ERROR:	ERROR 13
XIRQ_INTERRUPT_ERROR:	ERROR 14
CANT_CREATE_ANY_MORE_TIMERS_ERROR:	ERROR 15

CANT_CREATE_ANY_TIMERS_ERROR:	ERROR 16
TIMER_DOES_NOT_EXIST_ERROR:	ERROR 17
TIMER_ALREADY_EXISTS_ERROR:	ERROR 18
INVALID_TIMER_VECTOR_ERROR:	ERROR 19
INVALID_DATA_ERROR:	ERROR 20
STT_ERROR:	ERROR 21
INVALID_CHANNEL_NUMBER_ERROR:	ERROR 22
CHANNEL_BLOCK_CALCULATION_ERROR:	ERROR 23

Serial Communications module errors:

RX_OVERRUN_ERROR:	ERROR 24

Tone Generator module errors:

VALID_DTMF_TONE_NUMBER_ERROR:	ERROR 25
INVALID_AUDIO_TONE_NUMBER_ERROR:	ERROR 26

Additional Operating System Errors:

The following error was added for state transition table.

TIMER_NOT_ACTIVE_ERROR:	ERROR 27

The following error was added and the reserved numbers 28,29 for additional operating system errors.

ILLEGAL_RESET_STATE_ERROR:	ERROR 28

The following (added) error is used when an expected
Interrupt occurs (one for which no code has been written).

UNUSED_INTERRUPT_ERROR:	ERROR 29

Error definitions: (Conventional radio)   (40-83)

INVALID_PARAMETER_ERROR:	ERROR 40
INVALID_PROGRAMMING_ERROR:	ERROR 41
TASK_QUEUE_ERROR:	ERROR 42
RAM_EXCEEDED_ERROR:	ERROR 43
TEST_MODE_RESET_VECTOR_INCORRECT:	ERROR 44
TASK_SUSPENSION_CALL_ERROR:	ERROR 45

Personality Module Errors: (40-49)

STRING_BUFFER_OVERFLOW_ERROR:	ERROR 50
TX_COMM_BUFFER_ERROR:	ERROR 51
INVALID_DISPLAY_CHARACTER_ERROR:	ERROR 52

Functionality Module Errors: (55-59)

FUNCTION_NOT_SUPPORTED_ERROR: ERROR 55

Interface System Errors: (60-79, 80-89)

(Used by ch. frequency)	SYNTH_FREQ_NUM_TOO_BIG_ERROR:	ERROR 60
(Used by port_fm2)	ILLEGAL_TRANSMITTER_POWER_LEVEL_ERROR:	ERROR 61
(Used by tonegen)	AUDIO_TONE_FUNCTION_ERROR:	ERROR 70
(Used by CCI)	CCI_RX_BUFFER_OVERFLOW_ERROR:	ERROR 71
(Used by iodspcv)	DSP_MESSAGE_POINTER_ERROR:	ERROR 80
(Used by iodspcv)	DSP_ERROR_RECEIVED_ERROR:	ERROR 81

Error Definitions: (Trunked Radio)   (30-96)

MSK_RX_CRC_NOT_READY_ERROR:	ERROR 30
MSK_TX_TIMING_ERROR:	ERROR 31
MSK_TX_INTERRUPT_ERROR:	ERROR 32
MSK_TX_CRC_NOT_READY_ERROR:	ERROR 33
MSK_TX_UNLOCKED_ERROR:	ERROR 34
MSK_TX_NO_CODEWORD_ERROR:	ERROR 35
MSK_TX_DSP_NOT_READY_ERROR:	ERROR 36
INVALID_DSP_RESPONSE_ERROR:	ERROR 37
FLASH_MEMORY_WRITING_ERROR:	ERROR 38
DSP_TO_BUSY_ERROR:	ERROR 39

Personality Module errors:

INVALID_MESSAGE_ERROR:	ERROR 40
INVALID_PERSONALITY_ERROR:	ERROR 41
MENU_ERROR:	ERROR 42
LOGON_CHAR_ERROR:	ERROR 43
INVALID_LOGPERS_STATUS_ERROR:	ERROR 44
INVALID_ANN_NUMBERING_MODEL_ERROR:	ERROR 45
INVALID_LOGPERS_POWERUP_MESS_ERROR:	ERROR 46
INVALID_LOGPERS_NEXT_STATE_ERROR:	ERROR 47
INVALID_BAUD_RATE_ERROR:	ERROR 48
INVALID_MUTE_STATE_MACHINE_ERROR:	ERROR 49
INVALID_TIMER_ERROR:	ERROR 50
MESSAGE_DATA_ERROR:	ERROR 51
INVALID_MENU_ITEM:	ERROR 52
INPUT_STRING_STORE_OVERFLOW_ERROR:	ERROR 53

Core Processor errors:

INVALID_CODEWORD_RECEIVED_INDICATION_ERROR:	ERROR 54
INDICATOR_BYTE_ERROR:	ERROR 55
TRANSMISSION_TIMEOUT_ERROR:	ERROR 56
CODEWORD_FIELD_PARAMETER_ERROR:	ERROR 57
INVALID_CALL_REQUEST_ERROR:	ERROR 58
INVALID_TRUNKPERS_MODE_ERROR:	ERROR 60
SDM_QUEUE_FULL_ERROR:	ERROR 61
SDM_RX_ERROR:	ERROR 62
INVALID_CALL_TYPE_ERROR:	ERROR 63

Input Output module errors:

DISPLAY_DRIVER_COMMAND_ERROR:	ERROR 70
IN_OUT_DATA_ERROR:	ERROR 71
KEYPAD_LOCK_STATE_ERROR:	ERROR 72

Database module errors:

UNPROGRAMMED_DYNAMIC_ITEM_ERROR:	ERROR 73
INVALID_GROUP_ADDRESS_NUMBER:	ERROR 74
INVALID_PRESET_CALL_STRING_ERROR:	ERROR 75
INVALID_DIALLING_SCHEME_ERROR:	ERROR 76
INVALID_PRESET_LABEL_ERROR:	ERROR 77

General Category Errors:

Use this section for error numbers that don't belong in another section or for which their true section is used up.

SYNTH_SWITCHING_TIMING_ERROR:	ERROR 80
DISPLAY_DRIVER_FAILED_ERROR:	ERROR 81
OWN_FLEET_PROGRAMMING_ERROR:	ERROR 82
NON_VOLATILE_DATA_STORE_ERROR:	ERROR 83

This error is a database error which indicates that a database address was generated which does not correspond to a database memory type.

DATABASE_MEMORY_ERROR:	ERROR 84

Hardware Errors:

The following error number definitions are for hardware errors.
They are passed to procedure `system_error' in system.asm.
`HARDWARE_ERRORS' is an error number offset which is used to calculate the error number to be displayed, and transmitted via the serial port.
Ensure that when the offset is subtracted that the resulting hardware error number is "BCD" ie: contains 0 to 9 only.

HARDWARE_ERRORS:	X(nn)
EPROM_CHECKSUM_ERROR:	HARDWARE_ERRORS + 01
INTERNAL_RAM_TEST_FAILED:	HARDWARE_ERRORS + 02
EXTERNAL_RAM_TEST_FAILED:	HARDWARE_ERRORS + 03
DSP_NOT_RESPONDING_ERROR:	HARDWARE_ERRORS + 04
DSP_VERSION_ERROR:	HARDWARE_ERRORS + 05
MODE_ERRORS:	HARDWARE_ERRORS + 06
PRORTOTYPE_TIMER_EXPIRED_ERROR:	HARDWARE_ERRORS + 09
UNKNOWN_DEVICE_TYPE_ERROR:	HARDWARE_ERRORS + 10

The following hardware errors are used for DSP error SCRF 6326:

DSP_NOT_RESPONDING_ERROR:	HARDWARE_ERRORS + 11
DSP_VERSION_ERROR:	HARDWARE_ERRORS + 12
DSP_BUFFER_FULL_ERROR:	HARDWARE_ERRORS + 13

Soft Errors

The following hardware error number definitions are for "soft" errors ie: errors that do not cause the system to shut down. They are passed to procedure `soft_error' in system.asm.
`SOFT_ERRORS' is used for range checking and to adjust soft error numbers for use as offsets into tables:

SOFT_ERRORS:	HARDWARE_ERRORS + 31
CONFIGURATION_ERROR:	HARDWARE_ERRORS + 31
DATABASE_CHECKSUM_ERROR:	HARDWARE_ERRORS + 32
ESN_CHECKSUM_ERROR:	HARDWARE_ERRORS + 33

The following error messages indicate various states of temperature and voltage in computer controlled test mode.

OVER_TEMPERATURE_T1:	HARDWARE_ERRORS + 35
OVER_TEMPERATURE_T2:	HARDWARE_ERRORS + 36
UNDER_VOLTAGE_V1:	HARDWARE_ERRORS + 37
UNDER_VOLTAGE_V2:	HARDWARE_ERRORS + 38

CSO Instruction

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Compliance Issues

None

3.   Issuing Authority

**Name and Position
of Issuing Officer**   Chris Thomson
Technical Support

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