5. AT COMMAND SET

5.1 AT Command Descriptions

The FastPath chipsets' AT command set and S-registers are divided into four categories: Group 3 fax, data, V.42/MNP, and voice. Summaries of all commands are provided in Table 5-1 on page 26 through Table 5-14 on page 40, while Table 5-12 on page 38 provides a summary of all S-registers.

All command lines sent to the modem, except for **A/**, must be preceded by an 'AT' and terminated by the contents of S-register **S3** (typically a carriage return <CR>). AT stands for 'attention' and prompts the modem to receive a command line from the DTE. A <CR> informs the modem that the entire command string has been transmitted and that the modem should begin processing all the commands in the command line. A command line may include one or more AT commands. The commands may be separated by a space, if desired, but no punctuation is needed except for fax and voice commands. In a multiple-command line, fax and voice AT commands must be separated from following commands by a semicolon (;).

Examples:

```
ATS1?<CR>
A/
AT &F &D2 +FCLASS=?<CR>
AT +FCLASS=80; S0=1<CR>
```

The modem provides status information to the DTE in the form of response codes. The supported response codes are listed in Table 5-13 on page 39.

After sending an AT command string to the modem, the DTE must wait for a response code from the modem before sending a new AT command string to the modem.

5.2 AT Escape Sequences

The CL-MD34XX provides two industry-standard escape sequences: the Hayes® Escape Sequence and the Time Independent Escape Sequence (TIES).

Currently, most modems implement the Hayes Escape Sequence; but because licensing may be required, the V.34+ chipsets include TIES as an alternative. TIES is designed to work with existing communication software written for the Hayes Escape Sequence.

TIES/Hayes® Escape Sequences

The Cirrus Logic CL-MD34XX modem chipset is manufactured with TIES (Time Independent Escape Sequence) as the default setting. It is Hayes' position that you must have a valid license from Hayes Micro Computer of Norcross, Georgia, before producing modem systems that use the Hayes Escape Sequence.

Cirrus Logic accepts no responsibility and does not indemnify nor in any way provide protection for patent or possible patent violations to its customers or users of its products.

Table 5-1. Basic Data Modem AT Commands

	Command	Function	Default	Range	Reported by &Vn
**	A/	Repeat last command	none	–	no
	A	Answer	none	–	no
*	Bn	Select ITU-T or Bell	1	0–3	yes
	B0	Selects ITU-T V.22 at 1200 bps and ITU-T V.21 at 300 bps			
	B1	Selects Bell 212A at 1200 bps and Bell 103J at 300 bps			
	B2	Selects ITU-T V.23 only. The originating modem transmits at 75 bps (and receives at 1200 bps); the answering modem receives at 75 bps (and transmits at 1200 bps)			
	B3	Selects ITU-T V.23 only. The originating modem transmits at 1200 bps (and receives at 75 bps); the answering modem receives at 1200 bps (and transmits at 75 bps)			
	Cn	Carrier control option	1	0, 1	no
	C0	Transmit carrier always off			
	C1	Normal transmit carrier			
	D	Dial command	none	–	no
*	En	Command mode echo	1	0, 1	yes
	E0	Disables echo			
	E1	Enables echo			
	Fn	Online echo	1	0, 1	no
	F0	Enables online echo			
	F1	Disables online echo			
	Hn	Switch hook control	0	0, 1	no
	H0	Hangs up the telephone line			
	H1	Picks up the telephone line			
	In	Identification/checksum option	0	0–14, 20–24	no
	I0	Reports product code			
	I1	Reports modem chip firmware version			
	I2	Verifies ROM checksum			
	I3	Reports chipset name			
	I4	Reserved			
	I5	Reserved for modem chip hardware configuration			
	I6	Country code			
	I7	Version of board manufacturer firmware			
	I8	Features of modem firmware			
	I10	Modem board configuration — bits set by board manufacturer			

Table 5-1. Basic Data Modem AT Commands (cont.)

	Command	Function	Default	Range	Reported by &Vn
	I11	Modem board configuration — bits set by board manufacturer			
	I14	SAFE device			
	I20	Cirrus Logic silicon version			
	I21	Cirrus Logic firmware version			
	I22	Cirrus Logic manufacturer name			
	I23	Cirrus Logic product model			
*	Ln	Speaker volume control	2	0–3	yes
	L0	Low speaker volume			
	L1	Low speaker volume			
	L2	Medium speaker volume			
	L3	High speaker volume			
*	Mn	Speaker control	1	0–3	yes
	M0	Speaker always off			
	M1	Speaker on until carrier present			
	M2	Speaker always on			
	M3	Speaker off during dialing; speaker on until carrier present			
*	Nn	Select data rate handshake	1	0, 1	yes
	N0	Handshake only at DTE-to-modem data rate			
	N1	Begins handshake at DTE-to-modem data rate and falls to highest compatible rate			
	On	Go online	0	0, 1	no
	O0	Returns modem to Data mode			
	O1	Retrains equalizer and then returns to Data mode			
*	P	Select pulse dialing	none	–	yes
*	Qn	Result code display control	0	0, 1	yes
	Q0	Enables result codes			
	Q1	Disables result codes			
	Sn	Select an S-register	none	0–37	no
	Sn=x	Write to an S-register	none	n=0–37 x=0–255	no
	Sn?	Read from an S-register	none	0–37	no
*	T	Select tone dialing	none	–	no
*	Vn	Result code form	1	0, 1	yes
	V0	Choose numeric form			
	V1	Choose verbose (text) form			
*	Wn	Response code data rate	0	0–4	yes
	W0	Reports DTE speed response codes			

Table 5-1. Basic Data Modem AT Commands (cont.)

	Command	Function	Default	Range	Reported by &Vn
	W1	Reports DTE speed response codes			
	W2	Reports DCE speed response codes			
	W3	Reports DTE speed response codes and information on error correction and data compression			
	W4	Reports protocol, data compression, and DTE data rate			
*	Xn	Result code type	4	0–4	yes
	X0	Enables result codes 0–4; disables detection of busy and dial tone			
	X1	Enables result codes 0–5, 10, and above; disables busy and dial tone detection			
	X2	Enables result codes 0–6 and 10 and above; disables busy detection and enables dial tone detection			
	X3	Enables result codes 0–5, 7, and 10 and above; enables busy detection and disables dial tone detection			
	X4	Enables result codes 0–7 and 10 and above; enables busy and dial tone detection			
*	Yn	Long space disconnect	0	0, 1	yes
	Y0	Disables long space disconnect			
	Y1	Enables long space disconnect			
	Zn	Recall stored profile	0	0, 1	no
	Z0	Resets modem and recalls user profile 0			
	Z1	Resets modem and recalls user profile 1			
*	&Cn	DCD (data carrier detect) option	1	0, 1	yes
	&C0	Ignores remote modem status; DCD always on			
	&C1	DCD set according to remote modem status			
	&Dn	DTR (data terminal ready) option	2	0–3	yes
	&D0	In Async mode, modem ignores DTR			
	&D1	Modem switches from data mode to command mode when an on-to-off transition of DTR occurs			
	&D2	When DTR switches off, the modem goes on-hook and disables Auto-answer mode; when DTR switches on, auto-answer is enabled			
	&D3	Turning off DTR re-initializes the modem and resets values except UART registers			
	&F	Load factory defaults	none	–	no
*	&Gn	Guard tone option (1200 bps and 2400 bps only)	0	0–2	yes
	&G0	Disables guard tone			

Table 5-1. Basic Data Modem AT Commands (cont.)

	Command	Function	Default	Range	Reported by &Vn
	&G1	Enables 550-Hz guard tone			
	&G2	Enables 1800-Hz guard tone			
*	&Jn	Auxiliary relay control	0	0, 1	yes
	&J0	Auxiliary relay never operated			
	&J1	Activates auxiliary relay when modem is off-hook			
	&Kn	Select serial flow control	3	0, 3, 4	yes
	&K0	Disables flow control			
	&K3	Bidirectional hardware flow control			
	&K4	XON/XOFF software flow control			
*	&M0	Communication mode option — modem supports only Async mode	0	0	no
*	&Pn	Dial pulse ratio	0	0, 1	yes
	&P0	Sets 10-pps pulse dial with 39%/61% make-break			
	&P1	Sets 10-pps pulse dial with 33%/67% make-break			
*	&Q0	Communication mode option — modem supports only Async mode	0	0	yes
*	&Sn	DSR (data set ready) option	0	0, 1	yes
	&S0	DSR is always active			
	&S1	DSR active only during handshaking and when carrier is lost			
	&Tn	Self test commands	0	0–8	no
	&T0	Terminates test in progress			
	&T1	Initiates local analog loopback			
	&T4	Grants RDL request from remote modem			
	&T5	Denies RDL request from remote modem			
	&T6	Initiates remote digital loopback			
	&T7	Starts remote digital loopback with self-test			
	&T8	Initiates local analog loopback with self-test			
*	&Un	Disable Trellis coding	0	0, 1	yes
	&U0	Enables Trellis coding with QAM as fallback			
	&U1	QAM modulation only			
	&Vn	View active and stored profiles	0	0, 1, 3	no
	&V0	View stored profile 0			
	&V1	View stored profile 1			
	&V3	View relay and general-purpose input-output status			
	&Wn	Stored active profile	0	0, 1	no
	&W0	Store in user profile 0			

Table 5-1. Basic Data Modem AT Commands (cont.)

	Command	Function	Default	Range	Reported by &Vn
	&W1	Store in user profile 1			
*	&Yn	Select stored profile on power up	0	0, 1	yes
	&Y0	Recall stored profile 0 on power-up			
	&Y1	Recall stored profile 1 on power-up			
	&Zn=x	Store telephone number (up to 30 digits) to location 'n' (0–3)	none	n = 0–3 x = 0–9 A B C D # * T P R W @ , ! ;	no
*	%En	Auto-retrain control	1	0, 1	yes
	%E0	Disables auto-retrain			
	%E1	Enables auto-retrain			
*	%Gn	Rate renegotiation	0	0, 1	yes
	%G0	Disabled			
	%G1	Enabled			
*	-Cn	Generate data modem calling tone	1	0–2	yes
	-C0	Calling tone disabled			
	-C1	1300-Hz calling tone enabled			
	-C2	V.8 calling tone and 1300-Hz calling tone			
	+GMI?	Identify modem manufacturer	none	–	no
	+GMM?	Identify product model	none	–	no
	+GMR?	Identify product revision	none	–	no
	+MS=m	Modulation selections	V34B, 1, 300, 0	See note [a]	no

[a] See full command description in the CL-MD34XX Programmer's Guide for parameter ranges. For Data mode, the factory default setting is AT+MS=V34B, 1, 300, 0 to connect at 33,600 bps and below.

* Value saved in NVRAM.

** Command not preceded by an 'AT'.

Table 5-2. V.42 / V.42 bis MNP® AT Commands

	Command	Function	Default	Range	Reported by &Vn
*	%An	Set auto-reliable fallback character	13	0–127	yes
*	%Cn	MNP 5 data compression control	1	0, 1	yes
	%C0	No compression			
	%C1	Enables MNP5 data compression			
*	\An	MNP block size	3	0–3	yes
	\A0	Maximum 64 characters			
	\A1	Maximum 128 characters			
	\A2	Maximum 192 characters			
	\A3	Maximum 256 characters			
*	\Bn	Transmit break	none	0–9	no
*	\Cn	Set auto-reliable buffer	0	0–2	yes
	\C0	No data buffering			
	\C1	Four-second buffer until 200 characters in the buffer or detection of a SYN character			
	\C2	No buffering. Connects non-V.42 modems to V.42 modem			
*	\Gn	Set modem port flow control	0	0, 1	yes
	\G0	Disables port flow control			
	\G1	Sets port flow control to XON/XOFF			
*	\Jn	bps rate adjust control	0	0, 1	yes
	\J0	Disables rate adjust			
	\J1	Enables rate adjust			
*	\Kn	Set break control	5	0–5	yes
	In connect state, transmits break to remote (if in Reliable mode):				
	\K0, 2, 4	Enters Command mode, no break sent			
	\K1	Destructive/expedited			
	\K3	Nondestructive/expedited			
	\K5	Nondestructive/nonexpedited			
	In command state, transmits break to remote (if in Reliable mode):				
	\K0, 1	Destructive/expedited			
	\K2, 3	Nondestructive/expedited			
	\K4, 5	Nondestructive/nonexpedited			
	In connect state, receives break at modem port (if in Direct mode):				
	\K0, 2, 4	Immediately sends break and enters command state			
	\K1, 3, 5	Immediately sends the break through			
	In connect state, receives break at modem port and sends to serial port:				
	\K0, 1	Destructive/expedited			
	\K2, 3	Nondestructive/expedited			

Table 5-2. V.42 / V.42 bis MNP® AT Commands (cont.)

	Command	Function	Default	Range	Reported by &Vn
	\K4, 5	Nondestructive/nonexpedited			
*	\Nn	Set operating mode	3	0–4	yes
	\N0, 1	Selects Buffer (Normal) mode with speed buffering			
	\N2	Selects MNP Reliable mode			
	\N3	Selects V.42 Auto-reliable mode			
	\N4	Selects V.42 Reliable mode			
	\O	Originate reliable link	none	–	no
*	\Qn	Set serial port flow control	3	0–3	yes
	\Q0	Disables flow control			
	\Q1	XON/XOFF software flow control			
	\Q2	Unidirectional hardware flow control			
	\Q3	Bidirectional hardware flow control			
*	\T0	Disables inactivity timer	0	0–90	yes
	\U	Accept reliable link	none	–	no
*	\Xn	Set XON/XOFF pass-through	0	0, 1	yes
	\X0	Processes flow control characters			
	\X1	Processes flow control characters and passes to local or remote			
	\Y	Switch to Reliable mode	none	–	no
	\Z	Switch to Normal mode	none	–	no
*	-Jn	Set V.42 detect phase	1	0, 1	yes
	-J0	Disables the V.42 detect phase			
	-J1	Enables the V.42 detect phase			
*	"Hn	V.42 bis compression control	3	0–3	yes
	“H0	Disables V.42 bis			
	“H1	Enables V.42 bis only when transmitting data			
	“H2	Enables V.42 bis only when receiving data			
	“H3	Enables V.42 bis for both transmitting and receiving data			
	"On	V.42 bis string length	32	6–250	yes

* Value saved in NVRAM.

Table 5-3. Fax Identity Commands

Command	Function	Default	Range	Reported by &Vn
+FMDL?	Identifies product model	none	–	no
+FMFR?	Identifies modem manufacturer	none	–	no
+FMI?	Identifies modem manufacturer	none	–	no
+FMM?	Identifies product model	none	–	no
+FMR?	Identifies product version number	none	–	no
+FREV?	Identifies product version number	none	–	no

Table 5-4. Fax Class 1 AT Commands

Command	Function	Default	Range	Reported by &Vn
+FAE=n	Fax/data autorecognition	0	0, 1	no
+FCLASS=1	Mode selection	0	0, 1, 8, 80	yes
+FRH=n	Receive HDLC data	none	3	no
+FRM=n	Receive data	none	24, 48, 72, 73, 74, 96, 97, 98, 121, 122, 145, 146	no
+FRS=n	Wait for silence	none	1–255	no
+FTH=n	Transmit HDLC data	none	3	no
+FTM=n	Transmit data	none	24, 48, 72, 73, 74, 96, 97, 98, 121, 122, 145, 146	no
+FTS=n	Stop transmission and pause	none	0–255	no

Table 5-5. IS-101 Voice AT Commands

Command	Function	Default	Range	Reported by &Vn
+FCLASS=8	Voice mode selection	0	0, 1, 8, 80	yes
+FLO=n	Flow Control Select	1	0–2	no
+VBT=m	Buffer threshold setting	192, 320	192, 320	no
+VCID=n	Caller ID selection	*0	0–2	no
#VCSD=n	Voice command mode silence detection	0	0, 1	no
+VDR=m	Distinctive Ring selection	0,0	0–255, 0–255	no
+VEM=m	Event reporting and masking	'C' BB860980 BFE63883 BB863EE0	–	no
+VGM=n	Speakerphone microphone gain	128	121–131	no
+VGR=n	Receive gain selection	128	121–131	no
+VGS=n	Speakerphone speaker gain	128	121-131	no
+VGT=n	Volume selection	128	121–131	no
+VIP	Initialize parameter	–	–	no
+VIT=n	DTE/DCE inactivity timer	0	0–255	no
+VLS=n	Relay/speaker control	0	0–16	no
+VNH=n	Automatic hang-up control	0	0–2	no
+VRA=n	Ringback-goes-away timer	50	0–50	no
+VRN=n	Ringback-never-appeared timer	10	0–255	no
+VRX	Record mode	none	–	no
+VSD=m	Silence detection (quiet and silence)	128, 50	See note	no
+VSM=m	Compression method selection	140, 8000, 0, 0	See note	no
+VSP=n	Speakerphone on/off control	0	0, 1	no
#VSPS=n	Speakerphone type selection	manufacturer-specified	0, 1	no
+VTD=n	Beep tone duration timer	100	5–255	no
+VTS=m	DTMF and tone generation	none	See note	no
+VTX	Play mode	none	–	no

NOTE: See this command's description in the CL-MD34XX Programmer's Guide for range information.

***** The noted parameters, commands, and responses depend on the capability to receive.

Table 5-6. Voice DTE→DCE Character Pairs

Response	Hex Code	Function
<NUL>	00	Do nothing
<DLE>	10	Two contiguous <DLE><DLE> codes indicate a single <DLE> in the data stream
<SUB>	1A	<DLE><DLE> in data stream
<ETX>	03	End transmit data state
/	2F	Start of DTMF tone shielding
~	7F	DTMF transition to off
u	75	Bump up the volume
d	64	Bump down the volume
<ESC>	1B	End receive data state
!	21	Receive data abort
<CAN>	18	Clear transmit buffer of voice data
<FS>	1C	Concatenate transmit data streams
?	3F	Transmit buffer space available query

Table 5-7. Voice DTE←DCE Character Pairs

Response	Hex Code	Function
<DLE>	10	Single <DLE> character in the data stream
<SUB>	1A	<DLE><DLE> in data stream
<ETX>	3	End of Record mode data
X	58	Packet header for ‘Complex Event Detection Report’
.	2E	Packet terminator for the ‘Complex Event Detection Report’
/	2F	Start of DTMF tone shielding
~	7E	DTMF transition to off
0–9	30–39	DTMF tones 0–9
A–D	41–44	DTMF tones A–D
*	2A	DTMF tone *
#	23	DTMF tone #
o	6F	Receive buffer overrun
c	63	1100-Hz fax calling tone
e	65	1300-Hz data calling tone
h	68	Local phone goes on hook
H	48	Local phone goes off hook
s	73	Presumed hang-up silence time-out
q	71	Presumed end-of-message quiet time-out
l	6C	Loop current interruption
L	4C	Loop current polarity reversal
r	72	Ringback

Table 5-7. Voice DTE←DCE Character Pairs (cont.)

Response	Hex Code	Function
b	62	Busy/reorder/fast busy
d	64	Dial tone detected
u	75	Transmit buffer under-run
p	70	Line voltage increase (extension phone goes on-hook)
P	50	Line voltage decrease (extension phone goes off-hook)
a	61	Fax or data answer tone (2100 Hz)
f	66	Data answer detected (2225 Hz)
R	52	Incoming ring
% ‘ (,)	25, 26, 27, 28, 29	Manufacturer-specified

Table 5-8. VoiceView™ Commands

Command	Default	Function
+FCLASS=80	0	Mode selection
+FLO=n	1	Flow control select
+FPR	4	Select DTE/DCE Interface Rate —turn on/off autobaud
-SAC	–	Accept Data mode request
-SCD	–	Capabilities data
-SDA	–	Start modem Data mode
-SDS	–	Disable switchhook status monitoring (required if DCE implements switchhook status monitoring and is used with a handset adapter)
-SER?	–	Error status (read only)
-SFX	–	Start Fax data mode
-SIC	–	Reset capabilities to default setting
-SIP	–	Initialize VoiceView parameters
-SQR	–	Capabilities query response control
-SSP	–	VoiceView transmission speed
-SSQ	–	Start capabilities query
-SSR	–	Start sequence response control
-SVV	–	Start VoiceView data mode
+VGM=n	128	Speakerphone microphone gain
+VGS=n	128	Speakerphone speaker gain
+VLS=n	0	Analog source/destination selection
+VSP=n	0	Speakerphone on/off control

Table 5-9. VoiceView™ Response Codes

Response	Function
-SFA	Fax data mode start sequence event (mandatory only if Fax data mode is supported)
-SMD	Modem Data mode start sequence event (mandatory only if modem Data mode is supported)
-SRA	Receive ADSI response event
-SRC:	Receive capabilities information event
-SRQ	Receive capabilities query event
-SSV	VoiceView data mode start sequence event
-STO	Talk-off event

Table 5-10. VoiceView™ <DLE> Character Pairs

Command	Function
<CAN>	Abort data transfer in progress
<EOT>	End of message marker, final message of transaction, no response accepted
<ESC>	End of message marker, DCE shall immediately return to Voice mode
<ETB>	End of message marker, final response requested, after which the transaction terminates
<ETX>	End of message marker, continue transaction, response requested

Table 5-11. Dial Modifiers

Command	Function
0 to 9	Dialing digits
A, B, C, D, *, #	Tone dial characters
P	Pulse dial
R	Reverse Originate mode
S=n	Dial NVRAM telephone number
T	Tone dial
W	Wait for dial tone
,	Pause
!	Flash hook
@	Wait for quiet answer
;	Return to command state
- ( )	Ignored by modem

Table 5-12. S-Registers Summary

	Register	Function	Default	Range	Units	Reported by &Vn
*	S0	No. of rings to auto-answer on	0	0–255	ring	yes
	S1	Ring count	0	0–255	ring	yes
*	S2	Escape character	43	0–127	ASCII	yes
	S3	Carriage return character	13	0–127	ASCII	yes
	S4	Line feed character	10	0–127	ASCII	yes
	S5	Backspace character	8	0–32, 127	ASCII	yes
*	S6	Wait before dialing	2	2–255	second	yes
*	S7	Wait for carrier	60	1–255	second	yes
*	S8	Pause time for dial modifier	2	0–255	second	yes
*	S9	Carrier recovery time	6	1–255	0.1 second	yes
*	S10	Lost carrier hang up delay	14	1–255	0.1 second	yes
*	S11	DTMF dialing speed	70	50–255	ms	yes
*	S12	Guard Time	50	0–255	(0.02 second)	yes
*	S14	Bit-mapped options	170	–	–	no
	S16	Modem test options	0	–	–	no
*	S18	Modem test timer	0	0–255	second	yes
*	S21	Bit-mapped options	48	–	–	no
*	S22	Bit-mapped options	118	–	–	no
*	S23	Bit-mapped options	none	–	–	no
*	S25	Detect DTR change	5	0–255	0.01 second	yes
*	S27	Bit-mapped options	64	–	–	no
*	S30	Disconnect inactivity timer	0	0–255	minute	yes
*	S31	Bit-mapped options	none	–	–	no
*	S33	Sleep mode timer	10	0–90	second	yes
*	S37	Maximum line speed attempted	0	0–19	–	yes

* Value saved in NVRAM.

Table 5-13. DTE-Modem Data Rate Response Codes

Numeric Code	Verbose Code
0	OK
1	CONNECT
2	RING
3	NO CARRIER
4	ERROR
5	CONNECT 1200
6	NO DIAL TONE
7	BUSY
8	NO ANSWER
23	CONNECT 75/1200
22	CONNECT1200/75
10	CONNECT 2400
11	CONNECT 4800
24	CONNECT 7200
12	CONNECT 9600
25	CONNECT 12000
13	CONNECT 14400
59	CONNECT 16800
14	CONNECT 19200
61	CONNECT 21600
62	CONNECT 24000
63	CONNECT 26400
64	CONNECT 28800
28	CONNECT 38400
18	CONNECT 57600
31	CONNECT 115200
33	FAX
35	DATA
45	RINGBACK
See Note	CONNECT (DTE data rate) /(modulation)/(error correction)/(data compression) / TX:(DCE transmit data rate) / RX:(DCE receive data rate)

NOTE: This verbose response code is used to evaluate the modem connection and is enabled by the **W3** AT command. All other 'CONNECT' messages are used for **W0-W2** AT commands.

When the modem is configured for text responses **V1, W3** verbose response codes provide information about the DTE data rate, connection modulation, error correction protocol, data compression, and modem-to-modem data rate. When the modem is configured for **W3** and numeric responses **V0**, the modem responds as if it were set up for **W0**.

Table 5-14. Manufacturing-Only Commands [a]

	Command	Function	Default	Range
	%L	Receive line signal level	none	–
*	*NCnn	Country Select	0	–
	!P=m	Set plug-and-play board serial number	none	0–255, 0–255, 0–255, 0–255
*	S91	Select transmit level	10	0–15
*	S92	DTMF transmit level	10	0–15
	-Tn	Generate continuous DTMF tones	7	6, 7
	#VGP0=n	Read/write to general-purpose pins 0–7	See note	–
	#VGP1=n	Read/write to general-purpose pins 8–15	See note	–
	#VGP2=n	Read/write to general-purpose pins 16–23	See note	–

[a] These commands are meant to be used by the board manufacturer and not in generic applications software for end users.

* Value saved in NVRAM.

NOTE: Default values for **#VGP0–2 =n** are dependent on board design.