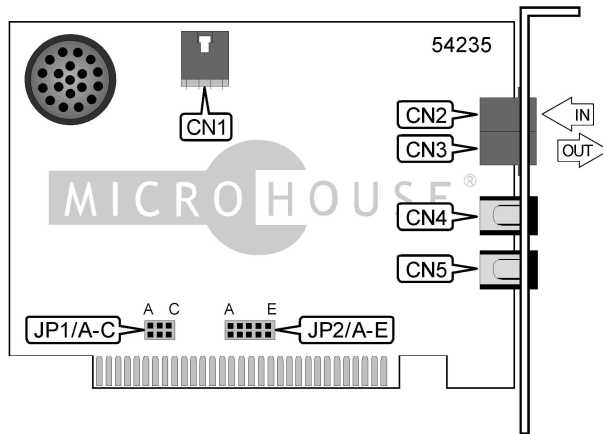


GATEWAY 2000 TELEPATH 33.6 FAX MODEM

Card Type	Modem
Chip Set	Unidentified
I/O Options	Soundcard connector, serial ports (2 RJ-11), microphone jack, line in
Maximum Modem Rate	33.6Kbps
Maximum Fax Rate	14.4Kbps
Data Modulation Protocol	Bell 103A/212A, ITU-T V.21, V.22, V.22bis, V.32, V.32bis, V.34, V.FC
Fax Modulation Protocol	V.17, V.21, CH2, V.27ter, V.29
Error Correction/Compression	MNP5, V.42, V.42bis
Fax Class	Class I & II
Data Bus	8-bit ISA
Card Size	Half-length



CONNECTIONS			
Function	Label	Function	Label
Cable connector to sound card	CN1	Microphone jack	CN4
RJ-11 telephone in	CN2	Line out	CN5
RJ-11 telephone out	CN3		

SERIAL PORT ADDRESS			
Setting	JP1/A	JP1/B	JP1/C
COM1 (3F8h)	Closed	Closed	Closed
COM2 (2F8h)	Open	Closed	Closed
COM3 (3E8h)	Closed	Open	Closed
COM4 (2E8h)	Open	Open	Closed

INTERRUPT					
Setting	JP2/A	JP2/B	JP2/C	JP2/D	JP2/E
IRQ2	Closed	Open	Open	Open	Open
IRQ3	Open	Closed	Open	Open	Open
IRQ4	Open	Open	Closed	Open	Open
IRQ5	Open	Open	Open	Closed	Open
IRQ7	Open	Open	Open	Open	Closed

MISCELLANEOUS TECHNICAL NOTES
A compatible sound card is necessary in order for the Speakerphone functions to operate properly.

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SUPPORTED COMMAND SET	
Basic AT Commands	
AT, '+', 'comma', A/	
A, B, E, F, H, O, P, R, T, V, X, Z	
&C, &D, &G, &P, &S, &T, &W, &X, &Y, &Z	
S Registers	
S0, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S18, S25, S38	
Special Commands	
#CID	
Note: See MHI Help File for full command documentation.	

PROPRIETARY AT COMMAND SET

DIAL	
Type:	Immediate
Format:	AT [cmds] D<#> [cmds]
Description:	Dials telephone number according to any modifiers included in the string
Note:	Any combination of modifiers can be used to produce the desired dial functions in sequence.
Command	Function
DL	Re-dial last number
DP	Pulse dialing enabled
DR	Answer mode enabled; originate mode disabled following handshake initiation.
DS=n	Dial stored telephone number <i>n</i>
DT	Tone dialing enabled/Pulse dialing disabled
DW	Dialing resumed following dial tone detection
D,	Dialing paused for amount of time specified in S8 register
D!	Flash function initiated. Modem commanded to go off-hook for specified time before returning on-hook.
D@	Wait for Quiet Answer function enabled. Modem waits until a "quiet answer," a ring-back signal followed by silence up to the time specified in S7, is received prior to executing the rest of the dial string.
D\$	Displays a list of dial commands
D;	Modem returned to idle state after dialing. The semicolon can only be placed at the end of the dial command.
D/	Delays for 125 msec before proceeding with dial string
D#	Extended touch tone pad tones
D*	Extended touch tone pad tones

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REPORT INFORMATION	
Type:	Immediate
Format:	AT [cmds] In [cmds]
Description:	Displays information requested
Command	Function
I0	Reports four digit product code
I1	Reports ROM checksum
I2	Reports RAM checksum
I3	Reports product type
I4	Reports current modem settings
I5	Reports nonvolatile memory settings
I6	Reports link diagnostics
I7	Reports product configuration
I11	Reports link diagnostics

SPEAKER VOLUME	
Type:	Configuration
Format:	AT [cmds] Ln [cmds]
Description:	Controls speaker volume
Command	Function
L0	Low volume setting
L1	Low volume setting
L2	Medium volume setting
L3	Highest volume setting

SPEAKER MODE	
Type:	Configuration
Format:	AT [cmds] Mn [cmds]
Description:	Selects various speaker options
Command	Function
M0	Speaker disabled
M2	Speaker enabled
M3	Speaker enabled following dialing, then disabled after carrier signal detected.

RESULT CODES	
Type:	Configuration
Format:	AT [cmds] Qn [cmds]
Description:	Enables modem to send result codes to the DTE
Command	Function
Q0	Result code sending enabled
Q1	Result code sending disabled
Q2	Result code sending enabled only in <i>Originate</i> mode

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POWER ON/RESET	
Type:	Configuration
Format:	AT [cmds] Yn [cmds]
Description:	Selects power on/reset default configuration
Command	Function
Y0	Profile 0 in NVRAM
Y1	Profile 0 in NVRAM
Y2	Generic template (&F0)
Y3	Hardware flow control (&F1)
Y4	Software flow control (&F2)

SOFT RESET	
Type:	Immediate
Format:	AT [cmds] Zn [cmds]
Description:	Restores modem profiles previously saved in non-volatile RAM using the &W command.
Command	Function
Z0	Restore modem to profile selected by Y command
Z1	Restore NVRAM setting 0
Z2	Restore NVRAM setting 1
Z3	Resets modem to factory default profile 0 (&F0)
Z4	Resets modem to factory default profile 1 (&F1)
Z5	Resets modem to factory default profile 2 (&F2)

CODE SUBSET DISPLAY	
Type:	Configuration
Format:	AT [cmds] &An [cmds]
Description:	Enable or suppress the display of an additional result code subsets.
Command	Function
&A0	Do not display ARQ result codes
&A1	Display ARQ result codes
&A2	Display modulation indicators
&A3	Display error control

SERIAL PORT RATE	
Type:	Configuration
Format:	AT [cmds] &Bn [cmds]
Description:	Sets serial port rate.
&B0	Variable, follows connection rate
&B1	Fixed serial port rate
&B2	Fixed in ARQ mode. Variable in non-ARQ mode

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FACTORY DEFAULT PROFILE	
Type:	Configuration

Format:	AT [cmds] &F [cmds]
Description:	Sets values in active profile to values found in the default profile
&F0	Generic template
&F1	Hardware flow control template
&F2	Software flow control template

TRANSMIT DATA FLOW CONTROL	
Type:	Configuration
Format:	AT [cmds] &H [cmds]
Description:	Sets transmit data flow
&H0	Flow control disabled
&H1	Hardware flow control, CTS
&H2	Software flow control, XON/XOFF
&H3	Hardware and software flow control

RECEIVE DATA FLOW CONTROL	
Type:	Configuration
Format:	AT [cmds] &I [cmds]
Description:	Sets transmit data flow
&I0	Software flow control disabled
&I1	XON/XOFF signals to your modem and remote system
&I2	XON/XOFF signals to your modem only

DATA COMPRESSION	
Type:	Configuration
Format:	AT [cmds] &Kn [cmds]
Description:	Enables/disables data compression
Command	Function
&K0	Data compression disabled
&K1	Auto enable/disable
&K2	Data compression enabled
&K3	MNP5 compression disabled

ERROR CONTROL	
Type:	Configuration
Format:	AT [cmds] &Mn [cmds]
Description:	Selects error control 1200bps and higher
Command	Mode
&M0	Normal mode, error control disabled
&M1	Reserved
&M2	Reserved
&M3	Reserved
&M4	Normal/ARQ
&M5	ARQ mode

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CONNECTION SPEED UPPER LIMIT	
Type:	Configuration
Format:	AT [cmds] &Nn [cmds]

Description:	Sets required connection speed if &U is set to 0; otherwise, sets fastest allowed connection speed.	
Command	Function	
&N0	No maximum connect speed.	
&N1	Set maximum connect speed to 300bps.	
&N2	Set maximum connect speed to 1200bps.	
&N3	Set maximum connect speed to 2400bps.	
&N4	Set maximum connect speed to 4800bps.	
&N5	Set maximum connect speed to 7200bps.	
&N6	Set maximum connect speed to 9600bps.	
&N7	Set maximum connect speed to 12Kbps.	
&N8	Set maximum connect speed to 14.4Kbps.	
&N9	Set maximum connect speed to 16.8Kbps.	
&N10	Set maximum connect speed to 19.2Kbps.	
&N11	Set maximum connect speed to 21.6Kbps.	
&N12	Set maximum connect speed to 24Kbps.	
&N13	Set maximum connect speed to 26.4Kbps.	
&N14	Set maximum connect speed to 28.8Kbps.	
&N15	Set maximum connect speed to 31.2Kbps.	
&N16	Set maximum connect speed to 33.6Kbps.	

RTS/CTS		
Type:	Configuration	
Format:	AT [cmds] &Rn [cmds]	
Description:	Selects RTS/CTS options	
Command	Function	
&R0	Reserved	
&R1	RTS is ignored by modem.	
&R2	Received data only on RTS. Controls DSR operations	

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CONNECTION SPEED LOWER LIMIT		
Type:	Configuration	
Format:	AT [cmds] &Un [cmds]	
Description:	Sets slowest allowed connection speed if &N is set to 1 or higher.	
Command	Function	

i &U0	No minimum connect speed.
&U1	Set minimum connect speed to 300bps.
&U2	Set minimum connect speed to 1200bps.
&U3	Set minimum connect speed to 2400bps.
&U4	Set minimum connect speed to 4800bps.
&U5	Set minimum connect speed to 7200bps.
&U6	Set minimum connect speed to 9600bps.
&U7	Set minimum connect speed to 12Kbps.
&U8	Set minimum connect speed to 14.4Kbps.
&U9	Set minimum connect speed to 16.8Kbps.
&U10	Set minimum connect speed to 19.2Kbps.
&U11	Set minimum connect speed to 21.6Kbps.
&U12	Set minimum connect speed to 24Kbps.
&U13	Set minimum connect speed to 26.4Kbps.
&U14	Set minimum connect speed to 28.8Kbps.
&U15	Set minimum connect speed to 31.2Kbps.
&U16	Set minimum connect speed to 33.6Kbps.

BREAK HANDLING	
Type:	Configuration
Format:	AT [cmds] &Yn [cmds]
Description:	Sets break handling
Command	Function
&Y0	Destructive, but doesn't sent break
&Y1	Destructive, expedited
&Y2	Nondestructive, expedited
&Y3	Reserved

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S(STATUS) -REGISTERS

BIT-MAPPED REGISTER S13	
Format:	AT [cmds] S13= <i>n</i> [cmds]
Range:	0-174
Unit:	Bit-mapped

Description: Controls echo, result codes and display, dial mode, and answer/originate mode.		
Bit	Value	Function
0	0	Unidentified
	1	Reset when DTR drops
1	0	Unidentified
	1	Resets non-MNP transmit buffer from 1.5K to 128bytes
2	0	Unidentified
	1	Set backspace key to delete
3	0	Unidentified
	1	DTR signals auto dial stored in NVRAM at position 0
4	0	Unidentified
	1	Power on auto dial stored in NVRAM at position 0
5	0	Not used
	1	Not used
6	0	Not used
	1	Not used
7	0	Unidentified
	1	Disconnect on escape code

BIT-MAPPED REGISTER S15		
Format: AT [cmds] S15= <i>n</i> [cmds]		
Range: 0-174		
Description: Bitmapped register setup.		
Bit	Value	Function
0	0	Enable ARQ/MNP for V.22
	1	Disable ARQ/MNP for V.22
1	0	Enable ARQ/MNP for V.22bis
	1	Disable ARQ/MNP for V.22bis
2	0	Disable ARQ/MNP for V32/V.32bis
	1	Disable ARQ/MNP for V32/V.32bis
3	0	Enable MNP handshake
	1	Disable MNP handshake
4	0	Enable MNP level 4
	1	Disable MNP level 4
5	0	Enable MNP level 3
	1	Disable MNP level 3
6	0	Special MNP compatibility
	1	Special MNP incompatibility
7	0	Enable V.42 detection phase
	1	Disable V.42 detection phase

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TOUCH TONE DIALING TEST		
Format: AT [cmds] S16= <i>n</i> [cmds]		
Range: 0-128		
Unit: Bit-mapped register setup		
Description: Bitmapped register setup.		
Bit	Value	Function
1	0	Touch tone dialing test disabled
	1	Touch tone dialing test enabled

2	0	Internal test pattern disabled
	1	Internal test pattern enabled
3-6	0	Not used
	1	Not used
7	0	Watchdog reset disabled
	1	Watchdog reset enabled

INACTIVITY TIMER	
Type:	Register
Format:	AT [cmds] S19= <i>n</i> [cmds]
Default:	0
Unit:	1 minute
Description:	Activates when there is no activity on the phone line. Modem hangs up at time-out
Note: S19=0 disables the timer and allows an indefinite duration.	

MNP OR V.42 MODE DELAY	
Type:	Register
Format:	AT [cmds] S21= <i>n</i> [cmds]
Range:	Unidentified
Unit:	10ms
Description:	Sets the length of breaks sent from modem to computer.

FLOW CONTROL CHARACTER - XON	
Type:	Register
Format:	AT [cmds] S22= <i>n</i> [cmds]
Range:	Unidentified
Unit:	ASCII
Description:	Sets the character used to represent XON

FLOW CONTROL CHARACTER - XOFF	
Type:	Register
Format:	AT [cmds] S23= <i>n</i> [cmds]
Range:	Unidentified
Unit:	ASCII
Description:	Sets the character used to represent XOFF

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DTR DELAY	
Format:	AT [cmds] S25= <i>n</i> [cmds]
Unit:	.01 second
Description:	Selects the duration that DTR must be dropped so that the modem doesn't interpret a random glitch as a DTR loss.

BIT-MAPPED REGISTER S27	
Format:	AT [cmds] S27= <i>n</i> [cmds]
Unit:	Bit-mapped
Description:	Selects line modulation

Bit	Value	Function
0	0	Disables ITU-T modulation at 300bps for overseas calls; in V.21 mode, the modem answers both overseas and domestic calls but only originates V.21 calls.
	1	Enables ITU-T modulation at 300bps for overseas calls; in V.21 mode, the modem answers both overseas and domestic calls but only originates V.21 calls.
1	0	Disables unencoded modulation in V.32bis mode.
	1	Enables unencoded modulation in V.32bis mode
2	0	Enables V.32 modulation
	1	Disables V.32 modulation
3	0	Enables 2100Hz answer tone to allow two V.42 modems to attach more quickly
	1	Disables 2100Hz answer tone to allow two V.42 modems to attach more quickly
4	0	Disables V.23 fallback mode
	1	Enables V.23 fallback mode
5	0	Enables V.32bis mode
	1	Disables V.32bis mode
6	0	Not used
	1	Not used
7	0	Software compatibility mode disabled
	1	Software compatibility mode enabled

ANSWER TONE DISABLE	
Type:	Register
Format:	AT [cmds] S28= <i>n</i> [cmds]
Range:	0-255
Unit:	.10 second
Description:	Eliminates the V.32 answer tones for faster dialing = "0"

ANSWER MODE FALLBACK TIMER	
Type:	Register
Format:	AT [cmds] S29= <i>n</i> [cmds]
Range:	Unidentified
Unit:	.10 seconds
Description:	Maximum duration of V.21/V.23 answer mode fallback timer.

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VOICE PLAYBACK AUDIO LEVEL	
Type:	Register
Format:	AT [cmds] S31= <i>n</i> [cmds]
Range:	0-255
Description:	Sets voice playback audio level.

BIT-MAPPED REGISTER S32		
Format:	AT [cmds] S32= <i>n</i> [cmds]	
Range:	Unidentified	
Description:	Register setup for 33.6 speed modems	
Bit	Value	Function

0	0	V.8 call indicate disabled
	1	V.8 call indicate enabled
1	0	Disables V.8 mode
	1	Enables V.8 mode
2	0	Enables V.FC modulation
	1	Disables V.FC modulation
3	0	Enables V.34 modulation
	1	Disables V.34 modulation
4	0	Enables 33.6kbps support
	1	Disables 33.6kbps support
5	0	Enables X2 support
	1	Disables X2 support

BIT-MAPPED REGISTER S33		
Format:		AT [cmds] S33= <i>n</i> [cmds]
Description:		Register setup for 33.6 speed modems
Bit	Value	Function
0	0	Enables 2400 symbol rate
	1	Disables 2400 symbol rate
1	0	Enables 2743 symbol rate
	1	Disables 2743 symbol rate
2	0	Enables 2800 symbol rate
	1	Disables 2800 symbol rate
3	0	Enables 3000 symbol rate
	1	Disables 3000 symbol rate
4	0	Enables 3200 symbol rate
	1	Disables 3200 symbol rate
5	0	Enables 3429 symbol rate
	1	Disables 3429 symbol rate
6	0	Not used
	1	Not used
7	0	Enables shaping
	1	Disables shaping

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BIT-MAPPED REGISTER S34		
Format:		AT [cmds] S34= <i>n</i> [cmds]
Range:		0-255
Description:		Disable/enable trellis encoding
Bit	Value	Function
0	0	Enable 8S-2D trellis encoding
	1	Disable 8S-2D trellis encoding
1	0	Enable 16S-4D trellis encoding
	1	Disable 16S-4D trellis encoding
2	0	Enable 32S-2D trellis encoding
	1	Disable 32S-2D trellis encoding
3	0	Enable 64S-4D trellis encoding
	1	Disable 64S-4D trellis encoding

4	0	Enable non-linear coding
	1	Disable non-linear coding
5	0	Enable TX level deviation
	1	Disable TX level deviation
6	0	Enable pre-emphasis
	1	Disable pre-emphasis
7	0	Enable pre-coding
	1	Disable pre-coding

BIT-MAPPED REGISTER S41		
Format:	AT [cmds] S41= <i>n</i> [cmds]	
Range:	Unidentified	
Unit:	Bit-mapped	
Description:	Selects ringing and speakerphone mode.	
Bit	Value	Function
0	0	Distinctive ringing disabled
	1	Distinctive ringing enabled
2,1	00	Full Duplex speakerphone
	11	Half Duplex speakerphone mode

VOICE COMMAND SET

MODE SELECTION	
Type:	Immediate
Format:	AT [cmds] #CLS= <i>n</i> [cmds]
Description:	Selects which mode the modem will operate in.
Command	Function
#CLS=0	Modem will operate in data mode.
#CLS=1	Modem will operate in fax class I mode.
#CLS=2	Modem will operate in fax class II mode.
#CLS=8	Modem will operate in voice mode.

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VOICE DEVICE	
Type:	Configuration
Format:	AT [cmds] #VLS= <i>n</i> [cmds]
Description:	Selects the I/O device for the DSP chip.
Note:	This modem may not support all options listed below. The #VLS? command will display the available options.
Command	Function
i #VLS=0	Telephone line and handset used for voice I/O.
#VLS=1	Telephone handset used for voice I/O.
#VLS=2	Internal speaker only used for voice I/O.
#VLS=3	External microphone only used for voice I/O.
#VLS=4	Telephone line and handset used for voice I/O; internal speaker enabled.

