

Computer Specifications

Main Unit

CPU	Cyrix 486SLC2-50 microprocessor
System speed	High and low speeds available; low speed is simulated 8 MHz; speed selection through keyboard command To select low speed, press the Ctrl, Alt, and - keys simultaneously. To select high speed, press the Ctrl, Alt, and + keys simultaneously. (Use the - or + key on the numeric keypad; Num Lock must be on)
Memory	4MB RAM standard on a system board; expandable to 8MB (maximum) with a 4MB memory module; system may come with 4MB or 8MB of standard RAM

ROM	128KB system BIOS, VGA BIOS, and Setup code located in single, programmable, OTP ROM on main system board
Video RAM	512KB DRAM on main system board
Shadow RAM	Supports shadowing of 128KB system and video BIOS ROM into RAM
Numeric coprocessor	Socket for optional Cyrix 83S87-25 numeric coprocessor
Clock/calendar	Real-time clock, calendar, and CMOS RAM; backed up by built-in clock chip

Controllers

Diskette drive	Built-in controller for one internal 3.5-inch diskette drive; supports 1.44MB and 720KB formats
Hard disk	Built-in controller for internal hard disk drive
Parallel	Centronics compatible, 25-pin, D-sub, female connector; 8-bit bidirectional parallel
Serial	RS-232C, programmable, asynchronous, 9-pin, D-sub male connector
LCD	Built-in, 16-bit Cirrus Logic GD6235 video controller; maximum resolution of 640 x 480 in 256 colors
External video	Autosensing, 16-bit controller; external 15-pin, D-sub, female connector for connecting an analog VGA or SVGA monitor; maximum resolution 1024 x 768 in 16 colors
Pointing device	6-pin, mini-DIN connector for a PS/2-type pointing device
External keyboard	6-pin, mini-DIN connector for a PS/2-type external keyboard
Speaker	Built-in ISA compatible speaker controller; internal
Modem	Internal connector for optional fax/modem
Phone jack	Standard RJ-11 connector for the internal fax/modem
Keyboard	85 (International) or 84 (US) keys; embedded numeric keypad and F11 and F12 keys
Trackball	Portable trackball with drivers and utilities installed

EPSON ActionNote 500C

Mass Storage

Diskette drive	One internal, 3.5-inch diskette drive; supports 1.44MB and 720KB formats
Hard disk drive	One internal hard disk drive; must be 2.5-inches wide, 15.5 mm height maximum, with AT interface and MCC mounting holes on the side

LCD Display 640 x 480 in 256 colors, 0.3 mm, high-contrast two-film; enhanced, STN single-scan, passive matrix; continuous brightness and contrast controls; power-saving feature; brightness and contrast enhancement

Setup Program Stored in ROM accessible by pressing the Delete key when prompted during boot (memory test)

Power Supply

AC adapter	+15.5VDC, 2.4A continuous AC adapter with international voltage input, 50/60 Hz
Battery pack	Rechargeable, internal battery pack; S-cell, 9.6 volt, 16.3Wh; 2 AH NiCad or 2.3 AH NiMH (optional)

Caution

Use only the AC adapter, optional automobile adapter, and batteries designed for use with the ActionNote 500C (AC adapter model number AP-3S25, automobile adapter A880461, NiCad battery A880451, and NiMH battery ASB1181). Do not use any adapter or battery designed for other ActionNote computers.

Physical Dimensions

Height	42 mm (1.6 in.)
Width	280 mm (11.0 in.)
Depth	225 mm (8.7 in.)
Weight (with battery pack installed)	2.5 kg (5.5 lb)

Environmental Requirements

Temperature	Operating 5° to 35° C (41° to 95° F) Non-operating: -20° to 60° C (-4° to 140° F)
Humidity	Operating: 30% to 90% (non-condensing) Non-operating: 5% to 95% (non-condensing)









Altitude	Operating: -61 to 4,000 m (-200 to 13,120 feet) Nonoperating: -61 to 9,136 m (-200 to 30,000 feet)
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Acoustical noise	35 dB @ 1 meter (maximum)
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Caution

When traveling by airplane, take the computer into the passenger compartment as carry-on luggage to prevent it from being stored in an unpressurized storage area.

LEDs

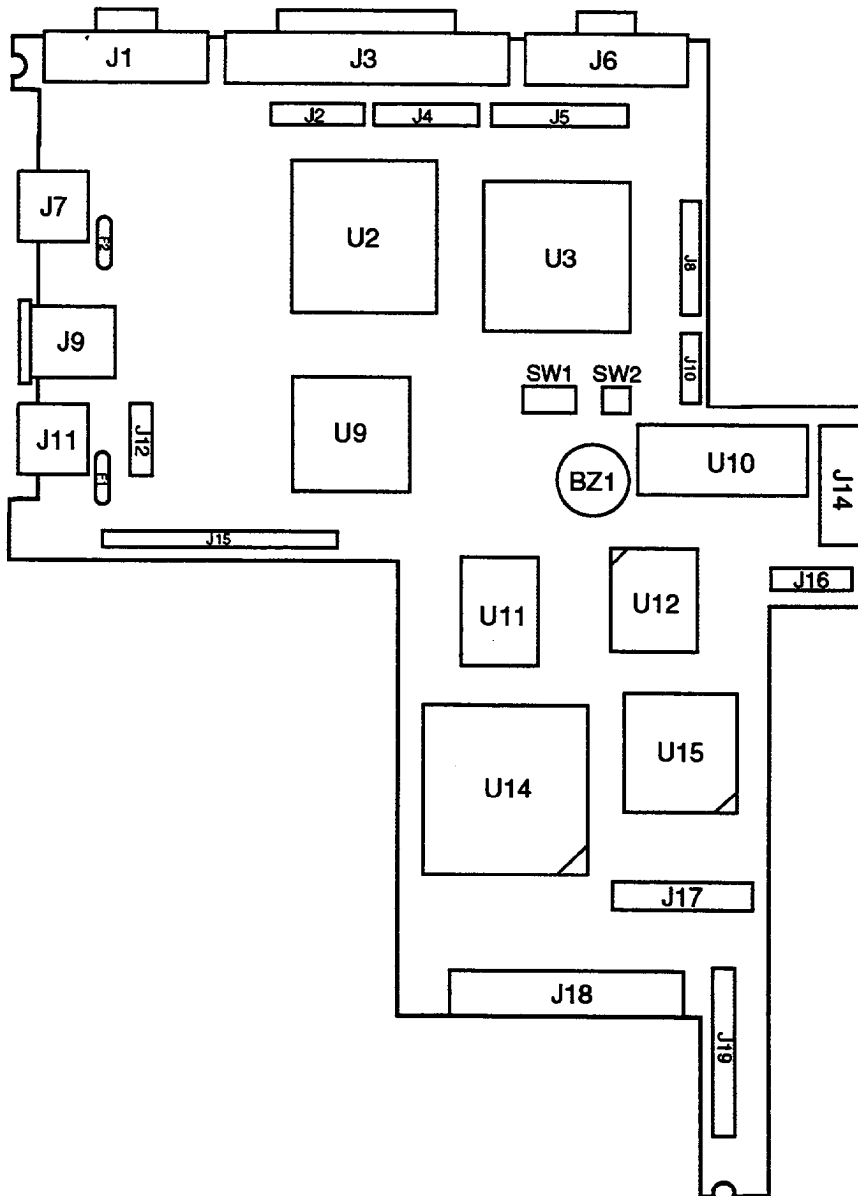
-  Power-Power is on; AC adapter, battery pack, or automobile adapter is supplying power
-  Low battery-Battery capacity is less than 20% when flashing
-  Charging-Battery is fully charged; blinks when the AC adapter is connected and charging the battery
-  Suspend mode--Computer is in Suspend mode
-  Hard disk drive--computer is accessing the hard disk drive
-  Num Lock-Num Lock is on, which activates the embedded numeric keypad
-  Caps Lock-Caps Lock is on
-  Scroll Lock-Scroll Lock is on

Options

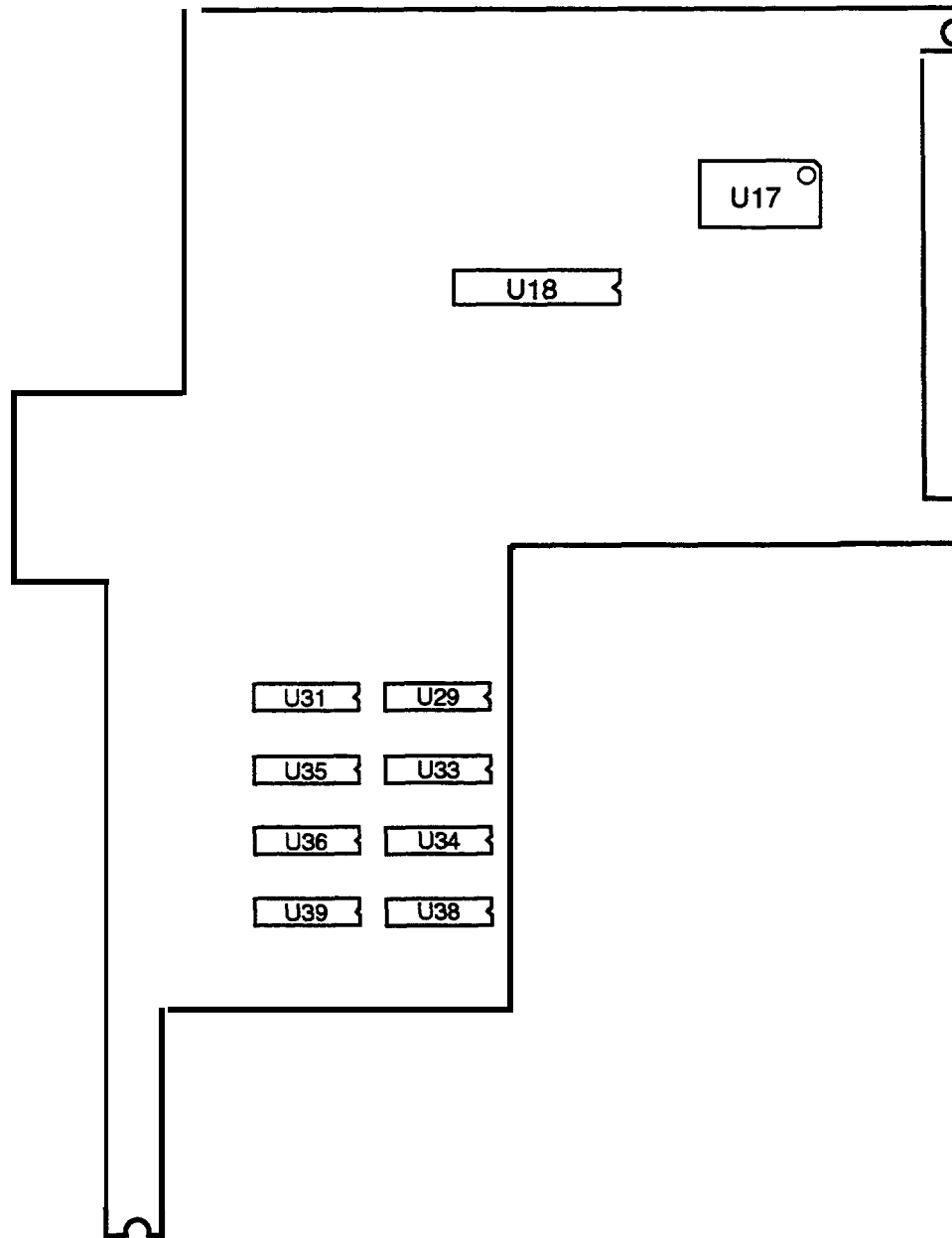
- 4MB expansion memory module
- External PS/2-compatible keyboard
- External numeric keypad
- Additional NiCad or NiMH battery pack
- Additional AC adapter
- Internal 9600/2400 baud fax/modem with software
- Internal 14.4/14.4 baud fax/modem with software
- Adapter for an automobile cigarette lighter

Main System Board Diagrams

Top Side; see "System Board Components" for a description of each labeled component



Underside; see "System Board Components" for a description of each labeled component



System Board Components

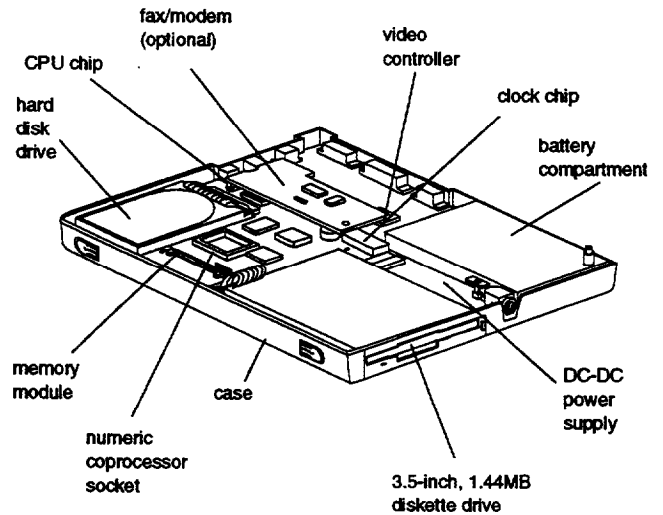
Socket	Component
U2	System controller
U3	16-bit video controller; supports LCD and CRT displays
U9	Processor
U10	RTC; includes Lithium backup battery and CMOS RAM
U11	Power management controller
U12	(OT) EPROM: VGA BIOS ROM and initialization BIOS ROM used during startup; supports shadow RAM
U13/U14	Coprocessor socket
U15	Keyboard controller
U17	Peripheral controller
U18	512KB Video DRAM (256KB x 16, one piece); provides simultaneous LCD/CRT monitor function
U29, U31, U33, U34, U35, U36, U38, U39	4MB standard DRAM soldered on the main system board
BZ1	Internal buzzer
F1	Fuse for mouse electric al protection
F2	Fuse for keyboard electric al protection
J1	Serial port COM1; 9-pin, D-shell, male; rear panel
J2	Suspend/resume, cover switch, brightness/contrast; 8-pin header, male
J3	Bidirectional parallel port; 25-pin, D-shell, female; rear panel
J4	LED; 10-pin header, male
J5, J8	LCD panel; 15-pin and 9-pin headers, male
J6	External CRT video; 15-pin, female; rear panel
J7	External keyboard port; 6-pin, mini-DIN, female; side panel
J9	RJ-11, modular-type phone jack
J10	CCFT inverter, LCD backlight; 9-pin header, male; shares five pins with LCD
J11	Mouse port; 6-pin, mini-DIN, female; side panel
J12	Fax/modem; 16-pin header, male
J14	Power supply DC-DC converter; 22-pin connector, female
J15	IDE hard disk drive interface; 44-pin header, males; supports hard disk drive
J16, J17	Keyboard ribbon terminators; 8-pin and 16-pin, respectively
J18	Memory module; 44-pin header, female
J19	Diskette drive ribbon terminator; 26-pin; supports one diskette drive

DIP Switches

DIP switch*	1	2	3	4
SW1	On	On	on	Off
SW2	On	off	-	-

Do not change these settings.

Major Subassemblies



Connector Pin Assignments

Parallel port connector pin assignments (J3)

Pin	Signal	Pin	Signal	Pin	Signal
1	Strobe	10	ACK*	19	Signal ground
2	Data 0	11	Busy	20	Signal ground
3	Data 1	12	Paper end	21	Signal ground
4	Data 2	13	Select	22	Signal ground
5	Data 3	14	Auto*	23	Signal ground
6	Data 4	15	Error*	24	Signal ground
7	Data 5	16	Init*	25	Signal ground
8	Data 6	17	Selectin*		
9	Data 7	18	Signal ground		

*Active low logic

Serial port connector pin assignments (J1)

Pin	Signal	Pin	Signal
1	Data carrier detect	6	Data set ready
2	Receive data	7	Request to send
3	Transmit data	8	Clear to send
4	Data terminal ready	9	Ring indicator
5	Signal GND		

Pointing device connector pin assignments (J11)

Pin	Signal	Pin	Signal
1	Mouse data	4	+5 VDC (fused)
2	Reserved	5	Clock, mouse
3	Ground	6	Reserved

External keyboard connector pin assignments (J7)

Pin	Signal	Pin	Signal
1	Keyboard data	4	+5 VDC (fused)
2	Reserved	5	Clock, keyboard
3	Ground	6	Reserved

Video port connector pin assignments (J6)

Pin	Signal	Pin	Signal	Pin	Signal
1	Red	6	Ground	11	MS0
2	Green	7	Ground	12	MS1
3	Blue	8	Ground	13	Horizontal sync
4	MS2	9	Unused	14	Vertical sync
5	Ground	10	Ground	15	Unused

Internal Keyboard Connectors

Internal keyboard connector pin assignments (J16)

Pin	Signal
1-8	Keyboard data line

Internal keyboard connector pin assignments (J17)

Pin	Signal
1-16	Keyboard scanning line

DC-DC Power Connector



DC-DC power connector pin assignments (J14)

Pin	Signal	Pin	Signal
1	Ground	12	Vcc
2	Ground	13	Vcc
3	Ground	14	Vcc
4	Ground	15	Vcc
5	EXTAC	16	Unused
6	Ground	17	VCCSUS
7	BATLO	18	CHARGE
8	+34 VDC	19	Vin
9	LCD ON	20	CONTR VR+
10	+34 VDC	21	Unused
11	Vin	22	CONTR VR-

AC-DC Power Connector



AC-DC power connector pin assignments

Pin	Signal
1	Ground
2	+ 15.5 VDC
3	Unused
4	Unused
Shielded	Frame ground

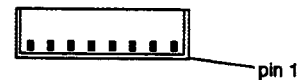
LED Connector



LED connector pin assignments (J4)

Pin	Signal	Pin	Signal
1	Ground	6	Charging
2	Hard disk drive LED	7	/LOSPD
3	Caps Lock	8	BATTLO
4	Num Lock	9	Ground
5	Scroll Lock	10	+5 V

Suspend/Resume Connector



Suspend/resume connector pin assignments (J2)

Pin	Signal	Pin	Signal
1	Ground	5	BL_VR+
2	CONTR_VR-	6	Ground
3	CONTR_VR+	7	Ground
4	BL_VR-	8	SUS/RES

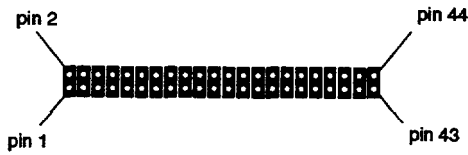
Diskette Drive Cable Connector



Diskette drive connector pin assignments (J19)

Pin	Signal	Pin	Signal
2	/INDEX	18	WGATE
4	/DRV0	20	/TRK0
6	DSKCHG	22	/WRPRT
8, 13	Reserved	24	/RDATA
9	RPM/LC	26	HDSEL
10	/MTR0	1-11	+5 VDC
12	DIR	(odd)	
14	/STEP	15-25	
16	/WDATA	(odd)	Ground

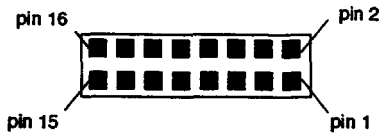
IDE Hard Disk Drive Connector



IDE hard disk drive connector pin assignments (J15)

Pin	Signal	Pin	Signal	Pin	Signal
1	/RESET	15	D1	29	Reserved
2	Ground	16	D14	30	Ground
3	D7	17	D0	31	IRQ14
4	D8	18	D15	32	/OCS16
5	D6	19	Ground	33	HA1
6	D9	20	Reserved	34	Reserved
7	D5	21	Reserved	35	HA0
8	D10	22	Ground	36	HA2
9	D4	23	/IOW	37	/HDCS0
10	D11	24	Ground	38	/HDCS1
11	D3	25	/IOR	39	/LEDHDD
12	D12	26	Ground	40, 43	Ground
13	D2	27	CHRDY	41, 42	+5 V
14	D13	28	Reserved	44	+5 V

Fax/modem Connector



Fax/modem connector pin assignments (J12)

Pin	Signal	Pin	Signal
1	Phone jack 2	9	CTS2
2	Phone jack 3	10	DSR2
3	Unused	11	Ground
4	Unused	12	F/M SPKR
5	RTS2	13	SOUT2
6	DCD2	14	SIN2
7	DTR2	15	+5 V
8	RI2	16	+5 V

LCD Panel Connector



LCD connector pin assignments (J5)

Pin	Signal	Pin	Signal
1	Vcc	9	LD3
2	LD4	10	Line clock
3	LD5	11	Modulation
4	LD6	12	Frame start pulse
5	LD7	13	Panel clock
6	LD0	14	Vin
7	LD1	15	Ground
8	LD2		

LCD (CCFT) Inverter Connector

LCD (CCFT) inverter connector pin assignments (J8)

Pin	Signal	Pin	Signal
1	Unused	6	UD4
2	Control	7	UD3
3	UD7	8	UD2
4	UD6	9	UD1
5	UD5	10	UD0

DMA Assignments

Level	Assigned device
DMA0	Spare (8-bit)
DMA1	Spare (8-bit)
DMA2	FDD controller (8-bit)
DMA3	Spare (8-bit)
DMA4	Cascade for CTRL-1
DMA5	Spare (16-bit)
DMA6	Spare (16-bit)
DMA7	Spare (16-bit)

Hardware Interrupts

IRQ no.	Function
IRQ0	Timer output
IRQ1	Keyboard
IRQ2	Cascade
IRQ3	Fax/modem (COM 2)
IRQ4	Serial port 1 (COM 1)
IRQ5	Available
IRQ6	FDD controller
IRQ7	Parallel port
IRQ8	Real-time clock
IRQ9	Cascade VGA
IRQ10	Available
IRQ11	Reserved
IRQ12	PS/2 compatible pointing device
IRQ13	Reserved
IRQ14	HDD controller
IRQ15	Reserved

System I/O Address Map

Hex address	Assigned device
000 - 01F	DMA controller 1
020 - 03F	Interrupt controller
040 - 05F	Timer/counter
060 - 06F	Keyboard controller
070 - 07F	Real-time clock NMI (non-maskable interrupt mask)
080 - 09F	DMA page register
0A0 - 0BF	Interrupt controller 2
0C0 - 0DF	DMA controller 2
0F0 - 0F1	Clear math coprocessor busy
0F1 - 0F8	Reset math coprocessor
0F8	Math coprocessor
100 - 1EF	Reserved
1F0 - 1FF	Hard disk
200 - 207	Reserved for game port
208 - 278	Reserved
278 - 27F	Parallel port 2
27F - 2F7	Reserved
2F8 - 2FF	Serial port 2
300 - 377	Reserved
378 - 37F	Parallel port 1 (default)
380 - 3AF	Reserved
3B0 - 3EF	Video system
3F0 - 3F7	Floppy controller
3F8 - 3FF	Serial port 1 (default)

Drive Option Information

Hard disk drive options *

Parameters	Toshiba		Areal	Seagate	Quantum
	MK1422FCV	MK1522FCV	A180	ST 9140 AG	GLS8580
Formatted capacity	86MB	126.3MB	174.6MB	127.9MB	85MB
Size (in)	2.5	2.5	2.5	2.5	2.5
Weight (oz)	4.9	4.9	4.4	5.7	4.2
Cylinders	1501	1880	1430	1430	722
Disks	1	1	2	2	1
Heads	2	2	4	4	2
Rotational speed	3600 RPM +/- 1%	3600 RPM	2981 RPM	3546RPM	3600 RPM
Average access time (ms)	15	15	15	16	17
Encoding method	RLL 1,7	RLL 1,7	RLL 2,7	RLL 1,7	RLL 1,7
Power consumption					
Startup	5.0 W	5.4 W	5.0 W	2.25 W	2.3 W
Idle	1.7 W	2.9 W	2.0 W	0.80 W	1.0 W
Drive type	1	2	3	47 (user-defined)	47 (user-defined)
Logical parameters					
Cylinders	988	812	715	980	722
Heads	10	8	10	15	10
LZ/ WPcom	0	0	0	0	0
Sectors per track	17	38	50	17	23

* Actual hard disk drive installed is subject to availability.

Standard diskette drive specifications

Parameters	3.5-inch 1.44MB Teac FD-05HF
Storage capacity	1474KB
Size (in)	3.5
Cylinders	80
Heads	2
Tracks	160
Track density	135 TPI
Power on ready time	505 ms (or less)
Settling time	15 ms (or less)
Average latency time	100 ms

Information Reference List

Engineering Change Notices

None.

Technical Information Bulletins

None.

Product Support Bulletins

None.

Related Documentation

- TM-AN500C ActionNote 500 Series Service Manual
- PL-AN500C ActionNote Parts Price List
- 400290600 ActionNote 500 Series User's Guide