File Dump Protocol

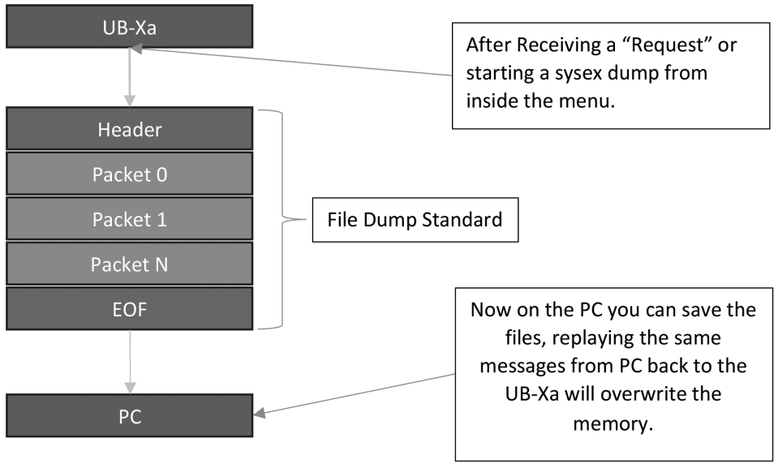
Please refer to File Dump Standard
(MIDI 1.0 Detailed Specification 4.2).
Pg 41. File Dump.

All applicable except:

- Beginning of message is altered to include the 'Behringer' Code and Model code instead of using the universal standard.
- `All Call' 0x7F can be used as the device ID here.
- `Dos Extension' is always `Bin '.
- The filename is always 16 characters in length and cannot be omitted.
- Wait command is not implemented.
- UB-Xa will 'ACK' on successful receipt of 'EOF'.

Data must be coded to 7 bits.

Sysex	Behringer ID			Model Code			Device	File Dump Mode	File		
F0	00	20	32	00	01	21	7F	74	07	01	Header
										02	Packet
										03	Request



File Names

File Names	Structure	Description
"Current Program "	[Upper Patch Data, Upper Sequence and Sequencer Settings, Lower Patch Data, Lower Sequence and Sequencer Settings, Split and Double Data]	This is an entire program; everything needed to save and restore the current the whole state of the UB-Xa for use in a performance. It includes the two patches with sequences and the performance panel settings stored in a split/double combination.
"Upper Patch "	[Upper Patch Data, Upper Sequence and Sequencer Settings]	The current upper patch for use in a performance.
"Lower Patch "	[Lower Patch Data, Lower Sequence and Sequencer Settings]	The current lower patch for use in a performance.
"PatchX %c%03d "	[Patch Data X, Sequence, Sequencer Settings]	Retrieve/Store a patch from memory. This is PatchX followed by 1 character A,B,C or D. Then the patch number with 3 decimals 001 -> 127.
"Globals "	[Global Setting Data]	The 'system wide' global settings.
"Split Double "	[Upper and Lower Addresses, Split and Double Data][2][36]	This returns the data for 36 Split program settings and then 36 double program settings. Preceding each split double data are 4 bytes. (0) Upper Bank number, (1) Upper Patch number, (2) Lower Bank number, (3) Lower Patch number
"AtrophyX %01d "	[Atrophy Parameter Data]	The data for a specific atrophy profile. This is AtrophyX followed by 1 digit decimal number containing the index for the atrophy profile.

Data Structures

Patch Data (pg. 1)

UB-Xa and UB-Xa D - Version 1.0

Position	Size (Bytes)	Preset Version	Category	Parameter	Value Range	Description								
0	2	0	Control	Portamento Amount	0,65535	Controls Level of Portamento								
2	2	0	Control	Portamento Bend	0,65535	The amount of portamento bend								
4	2	0	Control	Osc 2 Detune	0,65535	Detunes Osc 2 against Osc 1	Signed Number, Midpoint is 8192.							
6	2	0	Control	Voice Detune	0,65535	Detunes Voices randomly								
8	2	0	Performance	Volume	0,65535	Controls maximum volume level								
10	2	0	Modulation	LFO Retrigger Point	0,65535	The point in the cycle to retrigger the LFO.								
12	2	0	Modulation	LFO Rate	0,65535	Controls the rate of the Modulation LFO								
14	2	0	Modulation	LFO Phase	0,65535	Adjusts the phase of the Modulation LFO								
16	2	0	Modulation	Channel 1 Amount	0,65535	Sets the depth of modulation on channel 1								
18	2	0	Modulation	Channel 2 Amount	0,65535	Sets the depth of modulation on channel 2								
20	2	0	Envelopes	VCF Attack	0,65535	Attack time for VCF Envelope								
22	2	0	Envelopes	VCF Decay	0,65535	Decay time for VCF Envelope								
24	2	0	Envelopes	VCF Sustain	0,65535	Sustain level for VCF Envelope								
26	2	0	Envelopes	VCF Release	0,65535	Release time for VCF Envelope								
28	2	0	Envelopes	VCA Attack	0,65535	Attack time for VCA Envelope								
30	2	0	Envelopes	VCA Decay	0,65535	Decay time for VCA Envelope								
32	2	0	Envelopes	VCA Sustain	0,65535	Sustain level for VCA Envelope								
34	2	0	Envelopes	VCA Release	0,65535	Release time for VCA Envelope								
36	2	0	Modulation	Channel 1 Env Attack	0,65535	Attack time for Mod 1 Envelope								
38	2	0	Modulation	Channel 1 Env Delay	0,65535	Delay time for Mod 1 Envelope								
40	2	0	Modulation	Channel 2 Env Attack	0,65535	Attack time for Mod 2 Envelope								
42	2	0	Modulation	Channel 2 Env Delay	0,65535	Delay time for Mod 2 Envelope								
44	2	0	Miscellaneous	Pedal Release	0,65535	Pedal Release Time for VCA Envelope								
46	2	0	Oscillators	OSC 1 PWM Amount	0,65535	Sets level for Osc 1 Pulse Width Modulation								
48	2	0	Oscillators	OSC 1 Transpose	0,65535	Sets base pitch for Osc 1	Signed Number, Midpoint is 8192.							
50	2	0	Oscillators	OSC 2 PWM Amount	0,65535	Sets level for Osc 2 Pulse Width Modulation								
52	2	0	Oscillators	OSC 2 Transpose	0,65535	Offsets pitch of Osc 2 against Osc 1 in semitones	Signed Number, Midpoint is 8192.							
54	2	0	Filter	Filter Frequency	0,65535	Sets cutoff frequency for VCF								
56	2	0	Filter	Filter Resonance	0,65535	Sets Resonance level for VCF								
58	2	0	Filter	Filter Modulation	0,65535	Sets level of modulation to VCF								
60	2	0	Filter	Filter Noise	0,65535	Sets level of white noise into VCF								
62	2	0	Modulation Matrix	Bus 1 Amount	0,65535	Sets level of Mod Matrix Bus 1	Signed Number, Midpoint is 8192.							
64	2	0	Modulation Matrix	Bus 2 Amount	0,65535	Sets level of Mod Matrix Bus 2	Signed Number, Midpoint is 8192.							
66	2	0	Modulation Matrix	Bus 3 Amount	0,65535	Sets level of Mod Matrix Bus 3	Signed Number, Midpoint is 8192.							
68	2	0	Modulation Matrix	Bus 4 Amount	0,65535	Sets level of Mod Matrix Bus 4	Signed Number, Midpoint is 8192.							
70	2	0	Modulation Matrix	Bus 5 Amount	0,65535	Sets level of Mod Matrix Bus 5	Signed Number, Midpoint is 8192.							
72	2	0	Modulation Matrix	Bus 6 Amount	0,65535	Sets level of Mod Matrix Bus 6	Signed Number, Midpoint is 8192.							
74	2	0	Modulation Matrix	Bus 7 Amount	0,65535	Sets level of Mod Matrix Bus 7	Signed Number, Midpoint is 8192.							
76	2	0	Modulation Matrix	Bus 8 Amount	0,65535	Sets level of Mod Matrix Bus 8	Signed Number, Midpoint is 8192.							
78	2	0	General	Patch Name A	0,16383	Each parameter contains two 7 bit characters for a 16 character patch name.								
80	2	0	General	Patch Name B	0,16383									
82	2	0	General	Patch Name C	0,16383									
84	2	0	General	Patch Name D	0,16383									
86	2	0	General	Patch Name E	0,16383									
88	2	0	General	Patch Name F	0,16383									
90	2	0	General	Patch Name G	0,16383									
92	2	0	General	Patch Name H	0,16383									
94	1	0	Control	Unison Mode Toggle	0,1	Switches Unison mode on or off								
95	1	0	Control	Polyphonic Voice Number	1,8	Number of voices in polyphonic mode								
96	1	0	Control	Unison Voice Number	1,16	Number of voices in polyphonic mode								
97	1	0	Modulation	LFO Modulation	0,15	Allows LFO Rate to be modulated by selected source	Bitmask: LFO Track on~LFO Track off (0001) LFOEnv2 Rate on~LFOEnv2 Rate off (0010) TempoLock (0100) LFOTrig (1000)							
98	1	0	Modulation	LFO Shape	0,7	Selects waveform for Modulation LFO	0 = Sine	1 = Saw	2 = Square	3 = Ramp	4 = S&H	5 = Triangle	6 = Sample	7 = Noise
99	1	0	Modulation	Channel 1 Sends	0,7	Selects destinations for Modulation Channel 1	Bitmask: C1 OSC1 LFO on~C1 OSC1 LFO off (001) C1 OSC2 LFO on~C1 OSC2 LFO off (010) C1 Flt LFO on~C1 Flt LFO off (100)							
100	1	0	Modulation	Channel 1 Misc. Settings	0,3	Allows you to quantize and invert the channel modulation.	Bitmask: C1 Quant on~C1 Quant off (01) LFOEnv1 Inv on~LFOEnv1 Inv off (10)							
101	1	0	Modulation	Channel 2 Sends	0,7	Selects destinations for Modulation Channel 2	Bitmask: C2 PWM1 LFO on~C2 PWM1 LFO off (001) C2 PWM2 LFO on~C2 PWM2 LFO off (010) C2 Vol LFO on~C2 Vol LFO off (100)							
102	1	0	Modulation	Channel 2 Misc. Settings	0,3	Allows you to quantize and invert the channel modulation.	Bitmask: C2 Quant on~C2 Quant off (01) LFOEnv2 Inv on~LFOEnv2 Inv off (10)							

Position	Size (Bytes)	Preset Version	Category	Parameter	Value Range			Description							
103	1	0	Oscillators	Oscillator Mode	0,3	Selects Sync and Filter Enevelope Modulation for Osc 2		Bitmask: OSC2 sync on~OSC2 sync off (01) OSC2 f-env on~OSC2 f-env off (10)							
104	1	0	Oscillators	OSC 1 State	0,7	Sets some controls specific to Osc1		Bitmask: OSC1 full~OSC1 off (001) OSC1 VCO LFO 180~OSC1 VCO LFO 0 (010) OSC1 PWM LFO 180~OSC1 PWM LFO 0 (100)							
105	1	0	Oscillators	OSC 1 Shape	0,2	Sets waveform for Osc 1		0 = Pulse	1 = Saw	2 = Triangle					
106	1	0	Oscillators	OSC 2 Level	0,2	Sets full or half level for Osc 2		0 = half	1 = full	2 = off					
107	1	0	Oscillators	OSC 2 Shapes	0,2	Sets waveform for Osc 2		0 = Pulse	1 = Saw	2 = Triangle					
108	1	0	Filter	Filter Modes	0,3	Switches between 2-pole and 4-pole VCF		Bitmask: Filter track on~Filter track off (01) 4 pole filter~2 pole filter (10)							
109	1	0	Modulation Matrix	Bus 1 Source	0,41	Selects source for Mod Matrix Bus 1		0 = Empty	1 = Ch Pressure	2 = Poly AT	3 = Breath Cont	4 = Mod Ch1 Env	5 = Mod Ch2 Env	6 = Mod Ch 1	7 = Mod Ch 2
								8 = Expression	9 = Cutoff	10 = Filt Env	11 = Key Track	12 = Poly Key Trk	13 = Loudness Env	14 = Main LFO	15 = Second LFO
								16 = Noise	17 = Mod Wheel	18 = Osc 1	19 = Osc 2	20 = Pulse Width 1	21 = Pulse Width 2	22 = Bend Amount	
110	1	0	Modulation Matrix	Bus 1 Destination	0,38	Selects destination for Mod Matrix Bus1		0 = Empty	1 = Butter Input	2 = Filt Env Attack	3 = Filt Env Decay	4 = Filt Frequency	5 = Filter Mod	6 = Filter Noise	7 = Filt Env Release
								8 = Filt Resonance	9 = Filt Env Sustain	10 = Loud Env Att	11 = Loud Env Dec	12 = Loud Env Rel	13 = Loud Env Sus	14 = Mod Ch1 Amt	15 = Mod Ch2 Amt
								16 = Mod LFO Phase	17 = Mod LFO Rate	18 = Osc1 PW Amt	19 = Osc1 Transpose	20 = Control Detune	21 = Osc2 PW Amt	22 = Osc2 Transpose	23 = Control Panning
111	1	0	Modulation Matrix	Bus 2 Source	0,41	Selects source for Mod Matrix Bus 2		As Mod Matrix 1							
112	1	0	Modulation Matrix	Bus 2 Destination	0,38	Selects destination for Mod Matrix Bus 2		As Mod Matrix 1							
113	1	0	Modulation Matrix	Bus 3 Source	0,41	Selects source for Mod Matrix Bus 3		As Mod Matrix 1							
114	1	0	Modulation Matrix	Bus 3 Destination	0,38	Selects destination for Mod Matrix Bus 3		As Mod Matrix 1							
115	1	0	Modulation Matrix	Bus 4 Source	0,41	Selects source for Mod Matrix Bus 4		As Mod Matrix 1							
116	1	0	Modulation Matrix	Bus 4 Destination	0,38	Selects destination for Mod Matrix Bus 4		As Mod Matrix 1							
117	1	0	Modulation Matrix	Bus 5 Source	0,41	Selects source for Mod Matrix Bus 5		As Mod Matrix 1							
118	1	0	Modulation Matrix	Bus 5 Destination	0,38	Selects destination for Mod Matrix Bus 5		As Mod Matrix 1							
119	1	0	Modulation Matrix	Bus 6 Source	0,41	Selects source for Mod Matrix Bus 6		As Mod Matrix 1							
120	1	0	Modulation Matrix	Bus 6 Destination	0,38	Selects destination for Mod Matrix Bus 6		As Mod Matrix 1							
121	1	0	Modulation Matrix	Bus 7 Source	0,41	Selects source for Mod Matrix Bus 7		As Mod Matrix 1							
122	1	0	Modulation Matrix	Bus 7 Destination	0,38	Selects destination for Mod Matrix Bus 7		As Mod Matrix 1							
123	1	0	Modulation Matrix	Bus 8 Source	0,41	Selects source for Mod Matrix Bus 8		As Mod Matrix 1							
124	1	0	Modulation Matrix	Bus 8 Destination	0,38	Selects destination for Mod Matrix Bus 8		As Mod Matrix 1							
125	1	0	Arpeggiator	Enabled	0,1	Switches arpeggiator on or off									
126	1	0	Arpeggiator	Mode	0,11	Selects arpeggiator mode		0 = Up	1 = Down	2 = Inclusive	3 = Exclusive	4 = Random	5 = Order	6 = Up x 2	7 = Down x2
								8 = Up x 3	9 = Down x 3	10 = Up x 2/x 3	11 = Down x 2/x 3				
127	1	0	Arpeggiator	Hold	0,1	Switches key hold on or off									
128	1	0	Arpeggiator	Time	0,6	Selects clock division for arpeggiator		0 = 1/4 note	1 = 1/8 note	2 = 1/16 note	3 = 1/32 note	4 = 1/4 triplet	5 = 1/8 triplet	6 = 1/16 triplet	
129	1	0	Arpeggiator	Gate	0,99	Sets gate length for arpeggiator									
130	1	0	Arpeggiator	Sync	0,1	Switches between Global and Retriggering on addition of notes		0 = Global	1 = Retrigger						
131	1	0	Arpeggiator	Octave	1,6	Sets the number of octaves that an arpeggio will run through (1-6)									
132	1	0	Arpeggiator	RFU	0,10	Reserved for future use									
133	1	0	Arpeggiator	RFU	0,10	Reserved for future use									
134	1	0	Arpeggiator	RFU	0,255	Reserved for future use									
135	1	0	Performance	Transpose	0,127	Transpose the notes produced locally by the keyboard									
136	1	0	None	RFU	40,240	Reserved for future use									

Global Setting Data (pg. 1)

UB-Xa and UB-Xa D - Version 1.0

Position	Size (Bytes)	Preset Version	Category	Parameter	Value Range	Description							
0	1	0	Control	Portamento	0,15	Portamento Settings	Bitmask: Match (0001) Quantize (0010) Bend (0100) Exponential (1000)						
1	1	0	Control	Aftertouch	0,127	Aftertouch Level Settings							
2	1	0	Control	Unison Note Priority	0,2	The method of selecting the next note in unison	0 = Below	1 = Above	2 = Last				
3	1	0	Control	Chord Mode Note Priority	0,2	The method of selecting the root note in chord mode	0 = Below	1 = Above	2 = Last				
4	1	0	Midi	Lower Pitch Sensitivity	0,96	The pitch sensitivity for the lower zone							
5	1	0	Midi	Upper Pitch Sensitivity	0,96	The pitch sensitivity for the upper zone							
6	1	0	Miscellaneous	Vintage Knobs	0,1	Extended full knob range or purism with dead zones	0 = Extended	1 = Purism					
7	1	0	General	RFU	0,127	RFU							
8	1	0	General	RFU	0,3	RFU							
9	1	0	General	RFU	0,35	RFU							
10	1	0	General	RFU	0,35	RFU							
11	1	0	General	AtrophyProfileNumber	0,7	Current global atrophy profile							
12	1	0	General	UILastPatch	0,15	The patch that was last loaded, after power cycling the UB-Xa loads this patch.	Bitmask: Upper (0001) Lower (0010) Combo (0100) Split (1000)						
13	1	0	General	UIDisable	0,7	Disable some UI features	Bitmask: Assign Prset (001) LED Segues (010) Pulse revert (100)						
14	1	0	General	UIAtrophyMode	0,1	Atrophy Mode toggle. "Expert Mode"	0 = Read Only	1 = Edit Advanced					
15	1	0	Midi	Tempo	40,240	The current tempo of the arpeggiator/sequencer							
16	1	0	Midi	Sync	0,2	Select between Internal, USB and DIN	0 = Internal	1 = USB	2 = DIN				
17	1	0	Midi	Song Position	0,31	MIDI Song Position Controls	Bitmask: Position In (00001) Stop on Seek (00010) Stop all off (00100) Start En Seq (01000) Start En Arp (10000)						
18	1	0	Midi	Upper MIDI Rx	0,17	MIDI in channel for upper keyboard	0 = Channel 1	1 = Channel 2	2 = Channel 3	3 = Channel 4	4 = Channel 5	5 = Channel 6	6 = Channel 7	7 = Channel 8
							8 = Channel 9	9 = Channel 10	10 = Channel 11	11 = Channel 12	12 = Channel 13	13 = Channel 14	14 = Channel 15	15 = Channel 16
19	1	0	Midi	Lower MIDI Rx	0,17	MIDI in channel for lower keyboard	0 = Channel 1	1 = Channel 2	2 = Channel 3	3 = Channel 4	4 = Channel 5	5 = Channel 6	6 = Channel 7	7 = Channel 8
							8 = Channel 9	9 = Channel 10	10 = Channel 11	11 = Channel 12	12 = Channel 13	13 = Channel 14	14 = Channel 15	15 = Channel 16
20	1	0	Midi	Upper MIDI Tx	0,16	MIDI out channel for upper keybaord	0 = Channel 1	1 = Channel 2	2 = Channel 3	3 = Channel 4	4 = Channel 5	5 = Channel 6	6 = Channel 7	7 = Channel 8
							8 = Channel 9	9 = Channel 10	10 = Channel 11	11 = Channel 12	12 = Channel 13	13 = Channel 14	14 = Channel 15	15 = Channel 16
21	1	0	Midi	Lower MIDI Tx	0,16	MIDI out channel for lower keyboard	0 = Channel 1	1 = Channel 2	2 = Channel 3	3 = Channel 4	4 = Channel 5	5 = Channel 6	6 = Channel 7	7 = Channel 8
							8 = Channel 9	9 = Channel 10	10 = Channel 11	11 = Channel 12	12 = Channel 13	13 = Channel 14	14 = Channel 15	15 = Channel 16
22	1	0	Midi	Local Control	0,255	UB-Xa local settings	Bitmask: Local Ctrl (00000001) Din Rt (00000010) Din Clock (00000100) USB Rt (00001000) USB Clock (00010000) ProgChngeRx (00100000) ProgChngeTx (01000000) NRPNTx (10000000)						
23	1	0	Midi	Forwarding	0,255	MIDI Forwarding Control	Bitmask: Din to Usb (00000001) Usb to Din (00000010) Din to Din (00000100) Rt to Usb (00001000) Rt to Din (00010000) Clk to Din (00100000) Clk to Usb (01000000) ArpSeq Sel (10000000)						
24	1	0	Midi	USB	0,15	USB MIDI Controls	Bitmask: USB NRPN TX (0001) USB NRPN RX (0010) USB CC TX (0100) USB CC RX (1000)						
25	1	0	Midi	DIN	0,15	DIN MIDI Controls	Bitmask: DIN NRPN TX (0001) DIN NRPN RX (0010) DIN CC TX (0100) DIN CC RX (1000)						
26	1	0	Midi	MPE Profile	0,2	Active MPE Profile	0 = Disabled	1 = Single	2 = Zones				
27	1	0	Keyboard	Velocity Curve	0,2	Keyboard Velocity Curve Settings	0 = Soft	1 = Medium	2 = Hard				
28	1	0	Keyboard	Velocity Scale	0,127	Keyboard Velocity Scaling							
29	1	0	Keyboard	Aftertouch/Pressure	0,1	Aftertouch/Pressure switch	0 = Channel Pressure	1 = Poly Aftertouch					
30	1	0	Keyboard	Aftertouch Curve	0,2	Keyboard Aftertouch Curve Settings	0 = Soft	1 = Medium	2 = Hard				
31	1	0	Pedals	Sustain Pedal Assign	0,6	Sustain Pedal Control Assignment	0 = Patch Up	1 = Patch Down	2 = Program Up	3 = Program Down	4 = Sustain	5 = Hold	6 = Sostenuto	
32	1	0	Pedals	Sustain Pedal Action	0,2	Sustain Pedal Negative or Positive Action	0 = Negative	1 = Positive	2 = Disabled					
33	1	0	Pedals	Sustain Pedal Latch	0,1	Sustain Pedal Unlatch or Latch	0 = Unlatched	1 = Latched						
34	1	0	Pedals	Program Pedal Assign	0,6	Program Pedal Control Assignment	0 = Patch Up	1 = Patch Down	2 = Program Up	3 = Program Down	4 = Sustain	5 = Hold	6 = Sostenuto	
35	1	0	Pedals	Program Pedal Action	0,2	Program Pedal Negative or Positive Action	0 = Negative	1 = Positive	2 = Disabled					
36	1	0	Pedals	Program Pedal Latch	0,1	Program Pedal Unlatch or Latch	0 = Unlatched	1 = Latched						
37	1	0	Pedals	Hold Pedal Assign	0,6	Hold Pedal Control Assignment	0 = Patch Up	1 = Patch Down	2 = Program Up	3 = Program Down	4 = Sustain	5 = Hold	6 = Sostenuto	
38	1	0	Pedals	Hold Pedal Action	0,2	Hold Pedal Negative or Positive Action	0 = Negative	1 = Positive	2 = Disabled					

Global Setting Data (pg. 2)

UB-Xa and UB-Xa D - Version 1.0

Position	Size (Bytes)	Preset Version	Category	Parameter	Value Range	Description							
39	1	0	Pedals	Hold Pedal Latch	0,1	Hold Pedal Unlatch or Latch	0 = Unlatched	1 = Latched					
40	1	0	Pedals	Vibrato Pedal Assign	0,8	Vibrato Pedal Control Assignment	0 = Filter	1 = Vibrato	2 = Attack	3 = Release	4 = Decay	5 = CC #16	6 = CC #17	7 = CC #18
							8 = CC #19							
41	1	0	Pedals	Vibrato Pedal Action	0,2	Vibrato Pedal Negative or Positive Action	0 = Negative	1 = Positive	2 = Disabled					
42	1	0	Pedals	Vibrato Pedal Min	0,255	Vibrato Pedal minimum trimmer level								
43	1	0	Pedals	Vibrato Pedal Max	0,255	Vibrato Pedal maximum trimmer level								
44	1	0	Pedals	Filter Pedal Assign	0,8	Filter Pedal Control Assignment	0 = Filter	1 = Vibrato	2 = Attack	3 = Release	4 = Decay	5 = CC #16	6 = CC #17	7 = CC #18
							8 = CC #19							
45	1	0	Pedals	Filter Pedal Action	0,2	Filter Pedal Negative or Positive Action	0 = Negative	1 = Positive	2 = Disabled					
46	1	0	Pedals	Filter Pedal Min	0,255	Filter Pedal minimum trimmer level								
47	1	0	Pedals	Filter Pedal Max	0,255	Filter Pedal maximum trimmer level								
48	1	0	Midi	Device ID	0,15	SysEx ID for this UB-Xa	0 = Channel 1	1 = Channel 2	2 = Channel 3	3 = Channel 4	4 = Channel 5	5 = Channel 6	6 = Channel 7	7 = Channel 8
							8 = Channel 9	9 = Channel 10	10 = Channel 11	11 = Channel 12	12 = Channel 13	13 = Channel 14	14 = Channel 15	15 = Channel 16
49	1	0	Miscellaneous	Voice Defeat 1-8	0,255	Switch voices 1-8 on or off	Bitmask: Voice 1 (00000001) Voice 2 (00000010) Voice 3 (00000100) Voice 4 (00001000) Voice 5 (00010000) Voice 6 (00100000) Voice 7 (01000000) Voice 8 (10000000)							
50	1	0	Miscellaneous	Voice Defeat 9-16	0,255	Switch voices 9-16 on or off	Bitmask: Voice 9 (00000001) Voice 10 (00000010) Voice 11 (00000100) Voice 12 (00001000) Voice 13 (00010000) Voice 14 (00100000) Voice 15 (01000000) Voice 16 (10000000)							
51	1	0	General	Voice Defeat PWM Cal 1-8	0,255	Useful for long term support, repair, servicing and debugging. Disables particular softwawre calibration stage for particular voices.	Bitmask: Voice 1 (00000001) Voice 2 (00000010) Voice 3 (00000100) Voice 4 (00001000) Voice 5 (00010000) Voice 6 (00100000) Voice 7 (01000000) Voice 8 (10000000)							
52	1	0	General	Voice Defeat PWM Cal 9-16	0,255		Bitmask: Voice 9 (00000001) Voice 10 (00000010) Voice 11 (00000100) Voice 12 (00001000) Voice 13 (00010000) Voice 14 (00100000) Voice 15 (01000000) Voice 16 (10000000)							
53	1	0	General	Voice Defeat VCO Cal 1-8	0,255		Bitmask: Voice 1 (00000001) Voice 2 (00000010) Voice 3 (00000100) Voice 4 (00001000) Voice 5 (00010000) Voice 6 (00100000) Voice 7 (01000000) Voice 8 (10000000)							
54	1	0	General	Voice Defeat VCO Cal 9-16	0,255		Bitmask: Voice 9 (00000001) Voice 10 (00000010) Voice 11 (00000100) Voice 12 (00001000) Voice 13 (00010000) Voice 14 (00100000) Voice 15 (01000000) Voice 16 (10000000)							
55	1	0	General	Voice Defeat VCF Cal 1-8	0,255		Bitmask: Voice 1 (00000001) Voice 2 (00000010) Voice 3 (00000100) Voice 4 (00001000) Voice 5 (00010000) Voice 6 (00100000) Voice 7 (01000000) Voice 8 (10000000)							
56	1	0	General	Voice Defeat VCF Cal 9-16	0,255		Bitmask: Voice 9 (00000001) Voice 10 (00000010) Voice 11 (00000100) Voice 12 (00001000) Voice 13 (00010000) Voice 14 (00100000) Voice 15 (01000000) Voice 16 (10000000)							
57	1	0	General	RFU	0,32	RFU								
58	1	0	Miscellaneous	Contrast	0,32	Control display contrast								
59	1	0	Miscellaneous	Lever Settings	0,7	Invert Pitchbend and Modulation Lever Action	Bitmask: Invert Left (001) Invert Right (010) Swap Levers (100)							
60	1	0	Miscellaneous	Fan	0,2	Switch cooling fan on or off	0 = Enabled	1 = Temp Control	2 = Disabled					
61	1	0	General	BackgroundCalibrationSettings	0,2	Enabling, Disabling and Temperature control for background calibration.	0 = Enabled	1 = Only Auto	2 = Disabled					

Split and Double Data

Position	Size (Bytes)	Preset Version	Category	Parameter	Value Range	Description								
0	1	0	Performance	LFO Mods	0,15	Options for the Performance LFO. Including some not listed on the surface.	Bitmask: Track (0001) Envelope (0010) TempoLock (0100) LFOTrig (1000)								
1	1	0	Performance	Keyboard Split Point	0,127	Split point on the keyboard when in split mode. In MIDI notes.									
2	2	0	Performance	Panel Settings	0,63	The settings of the 8 buttons below the levers.	Bitmask: Bend Osc2 only~Bend Osc1 & Osc2 (000001) Custom bend~Bend +/- 2 (000010) OSC1 (000100) OSC2 (001000) Upper (010000) Lower (100000)								
4	2	0	Performance	Pitch Bend Sensitivity	0,65535	The sensitivity of the pitch bend.									
6	2	0	Performance	Transpose	0,65535	A pitch transpose of the instrument when pressing up and down.	Signed Number, Midpoint is 8192.								
8	2	0	Performance	LFO Rate	0,65535	Rate of the performance LFO									
10	2	0	Performance	LFO Shape	0,7	Shape of the performance LFO		0 = Sine	1 = Sawtooth	2 = Square	3 = Ramp	4 = Sample & Hold	5 = Triangle	6 = Sample	7 = Noise
12	2	0	Performance	LFO Depth	0,65535	Depth of the performance LFO									

Sequencer Settings

Position	Size (Bytes)	Preset Version	Category	Parameter	Value Range	Description							
0	1	0	Sequencer	Step Count	0,64	Number of steps in the sequence							
1	1	0	Sequencer	Seq time	0,6	Selects clock division for sequencer	0 = 1/4 note	1 = 1/8 note	2 = 1/16 note	3 = 1/32 note	4 = 1/4 note triplet	5 = 1/8 note triplet	6 = 1/16 note triplet
2	1	0	Sequencer	Seq gate time	0,99	Sets gate length for sequencer							
3	1	0	Sequencer	Sync	0,1	Switches between Global and Retriggering on addition of notes	0 = Global	1 = Retrigger					

Atrophy Parameter Data

UB-Xa and UB-Xa D - Version 1.0

Position	Size (Bytes)	Preset Version	Category	Parameter	Value Range	Description	EMCA Script	Unit
0	1	0	Modulation	Portamento spread	0,255	Adjust the difference in speed of the voices when gliding in portamento mode.	((x / 255) * 100)	PERCENT
1	1	0	Modulation	Portamento range	0,255	Adjust the overall speed of the portamento effect.	((x / 255) * 100)	PERCENT
2	1	0	Modulation	Performance LFO max speed	0,255	Adjust the maximum speed of the main modulation LFO.	Math.pow(2, (x - 255) / 27.63083863) * 60	HZ
3	1	0	Modulation	Modulation LFO max speed	0,255	Adjust the maximum speed of the performance panel LFO.	Math.pow(2, (x - 255) / 27.63083863) * 60	HZ
4	1	0	Quirks	Quirks	0,3	Make adjustments to reflect the quirks of early vintage synthesisers. Bitmask: FlipSquare (01) FlipVCFMod (10)		
5	1	0	Oscillators	OSC1 PW left trimmer	0,255	The duty cycle of the pulse waveform when knob is all the way to the left.	((x / 255) * 100)	PERCENT
6	1	0	Oscillators	OSC1 PW right trimmer	127,255	The duty cycle of the pulse waveform when knob is all the way to the right.	((x / 255) * 100)	PERCENT
7	1	0	Oscillators	OSC2 PW left trimmer	0,255	The duty cycle of the pulse waveform when knob is all the way to the left.	((x / 255) * 100)	PERCENT
8	1	0	Oscillators	OSC2 PW right trimmer	127,255	The duty cycle of the pulse waveform when knob is all the way to the right.	((x / 255) * 100)	PERCENT
9	1	0	Oscillators	Pitch modulation depth	6,48	The depth of the modulation when applied to pitch.	x	SEMITONES
10	1	0	Oscillators	Pulse modulation depth	0,255	The depth of the modulation when applied to pulse width.	((x / 255) * 100)	PERCENT
11	1	0	Oscillators	Pulse modulation offset	0,255	A fixed offset introduced to the pulse modulation when applied.	((x - 0x80) / 255) * 100	PERCENT
12	1	0	Oscillators	Oscillator chaos	0,63	Introduces a chaotic detuning of voices relative to the central pitch.	(x / 63) * 100	CENT
13	1	0	Oscillators	Oscillator Volts per octave error	0,31	Loosen the volts per octave tracking of the VCOs from the initial frequency.	(((x)-16) / 32) * 12.5	CENTPOCT
14	1	0	Oscillators	Oscillator chaos speed	0,63	Speed random detuning of the voices changes from one random value to another	((x / 63) * 61.5)	DRIFTSPEED
15	1	0	Oscillators	Oscillator Volts per octave chaos	0,63	Introduce randomness to the volts per octave tracking of the VCOs.	(x / 63) * 12.5	CENTPOCT
16	1	0	Oscillators	Oscillator initial frequency	0,127	The point at which the volts per octave tracking is most precise.	Math.pow(2, (x-69)/12)*440	HZ
17	1	0	Oscillators	Oscillator f-env range	1,63	The range that the filter envelope affects the oscillators when F-Env is enabled.	x	SEMITONES
18	1	0	Filter	2 Pole Resonance trimmer	0,255	Adjust the trimmer on the 2 pole resonance amount for all voices	((((x + 257)) / 512) * 100)	PERCENT
19	1	0	Filter	4 Pole Resonance trimmer	0,255	Adjust the trimmer on the 4 pole resonance amount for all voices	((x / 255) * 100)	PERCENT
20	1	0	Filter	Filter Frequency Amount	0,63	Adjusts the range of the Filter Frequency control	((x)+48)	SEMITONES
21	1	0	Filter	2 Pole Floor	0,48	Adjusts the minimum point of the Filter Frequency	Math.pow(2, (x-69)/12)*440	HZ
22	1	0	Filter	4 Pole Floor	0,48	Adjusts the minimum point of the Filter Frequency	Math.pow(2, (x-69)/12)*440	HZ
23	1	0	Filter	Filter envelope amount	0,127	Adjusts the range of the Filter Modulation control	(x+48)	SEMITONES
24	1	0	Filter	Filter envelope attack linearity	0,63	Adjusts the linearity of the attack phase of the filter envelope.	((x / 63) * 100)	PERCENT
25	1	0	Filter	Filter envelope chaos	0,31	Adds noise to the filter envelope setting for each voice.	((x / 31) * 32)	ENVUNITS
26	1	0	Filter	Filter LFO range	0,127	Adjusts the range of the filter LFO.	(x+48)	SEMITONES
27	1	0	Filter	Filter chaos	0,63	Introduces a chaotic detuning of filter relative to the central pitch.	(x / 63) * 100 * 4	CENT
28	1	0	Filter	Filter chaos speed	0,63	Speed random detuning of the voices changes from one random value to another	((x / 63) * 61.5)	DRIFTSPEED
29	1	0	Filter	Filter track offset	0,63	Add a fixed offset to the filter tracking.	x * -1	SEMITONES
30	1	0	Filter	Filter pedal range	0,96	Adjusts the range of the filter pedal.	x	SEMITONES
31	1	0	Filter	Filter Volts per octave error	0,63	Loosen the volts per octave tracking of the VCFs from the initial frequency.	(((x)-32) / 63) * 100	CENTPOCT
32	1	0	Filter	Filter Volts per octave chaos	0,63	Introduce randomness to the volts per octave tracking of the VCF.	(x / 63) * 50	CENTPOCT
33	1	0	Filter	Filter initial frequency	0,127	The point at which the volts per octave tracking is most precise.	Math.pow(2, (x-69)/12)*440	HZ
34	1	0	VCA	Silence point	0,255	Set manually the point at which no sound can be heard	((x / 255) * 50)	PERCENT
35	1	0	VCA	VCA bias 2p filter	0,255	Attenuate the VCA when the 2 pole filter is engaged	((x / 255) * 100)	PERCENT
36	1	0	VCA	VCA bias unison filter	0,255	Attenuate the VCA when unison mode is engaged	((x / 255) * 100)	PERCENT
37	1	0	VCA	VCA bias master	0,255	Attentuate the VCA	((x / 255) * 100)	PERCENT
38	1	0	VCA	VCA envelope attack linearity	0,63	Adjusts the linearity of the attack phase of the VCA envelope.	((x / 63) * 100)	PERCENT
39	1	0	VCA	VCA envelope chaos	0,31	Adds noise to the loudness envelope setting for each voice.	((x / 31) * 32)	ENVUNITS
40	16	0	Panning	PanningVoice 1-16	0,255	Individual panning for all 16 voices. Center is 127, L = 0, R = 255		
56	6	0	General	AtrophyProfileNameA-F	32,255	Inside each byte is one 7 Bit character containing a letter of the profile name		