

# MIDIBox Juno Control (JuCtrl)



## Project Description

The **MIDIBox JuCtrl** is a **Alpha Juno** MIDI Controller [https://en.wikipedia.org/wiki/Roland\\_Alpha\\_Juno](https://en.wikipedia.org/wiki/Roland_Alpha_Juno). It's an additional **control surface** and MIDI Controller for the Roland Alpha Juno Synthesizer. I started this Project because the original Juno User CS is very minimalistic (80s Style). With the **MIDIBox JuCtrl** is every Tone parameter directly at hand. Furthermore you can store all 128 Juno Tone Colours on Bankstick.

## Functions

- Control every Juno Tone Parameter with an encoder or button
- Control one parameter (IPR) or send all parameter at once (APR)
- Store Juno patches (Tones) on Bankstick
- Juno Tone parameter overview (via CS LCD & LED)
- MIDI processing: CC to sysex conversation

## Hardware

### JuCtrl Hardware:

- 1x MBHP Core8 (PIC 18F4620) | ⇒ ([http://www.ucapps.de/mbhp\\_core.html](http://www.ucapps.de/mbhp_core.html))
- 1x LCD Module: 2x20 LCD (8bit) | ⇒ ([http://www.midibox.org/users/jim\\_henry/building\\_a\\_midibox\\_lcd\\_cable.pdf](http://www.midibox.org/users/jim_henry/building_a_midibox_lcd_cable.pdf))
- 2x MBHP DOUTx4 | ⇒ ([http://www.ucapps.de/mbhp\\_dout.html](http://www.ucapps.de/mbhp_dout.html))
- 3x MBHP DINx4 | ⇒ ([http://www.ucapps.de/mbhp\\_din.html](http://www.ucapps.de/mbhp_din.html))
- 1x MBHP IIC MIDI Module (extra MIDI IO for Juno Synth) IIC MIDI adr. = 0x10(J3 port) | ⇒([http://www.ucapps.de/mbhp\\_iic\\_midi.html](http://www.ucapps.de/mbhp_iic_midi.html))
- 1-8x Bankstick | Store 128 Juno Tones [24256(32k)]  
⇒([http://www.ucapps.de/mbhp\\_bankstick.html](http://www.ucapps.de/mbhp_bankstick.html))

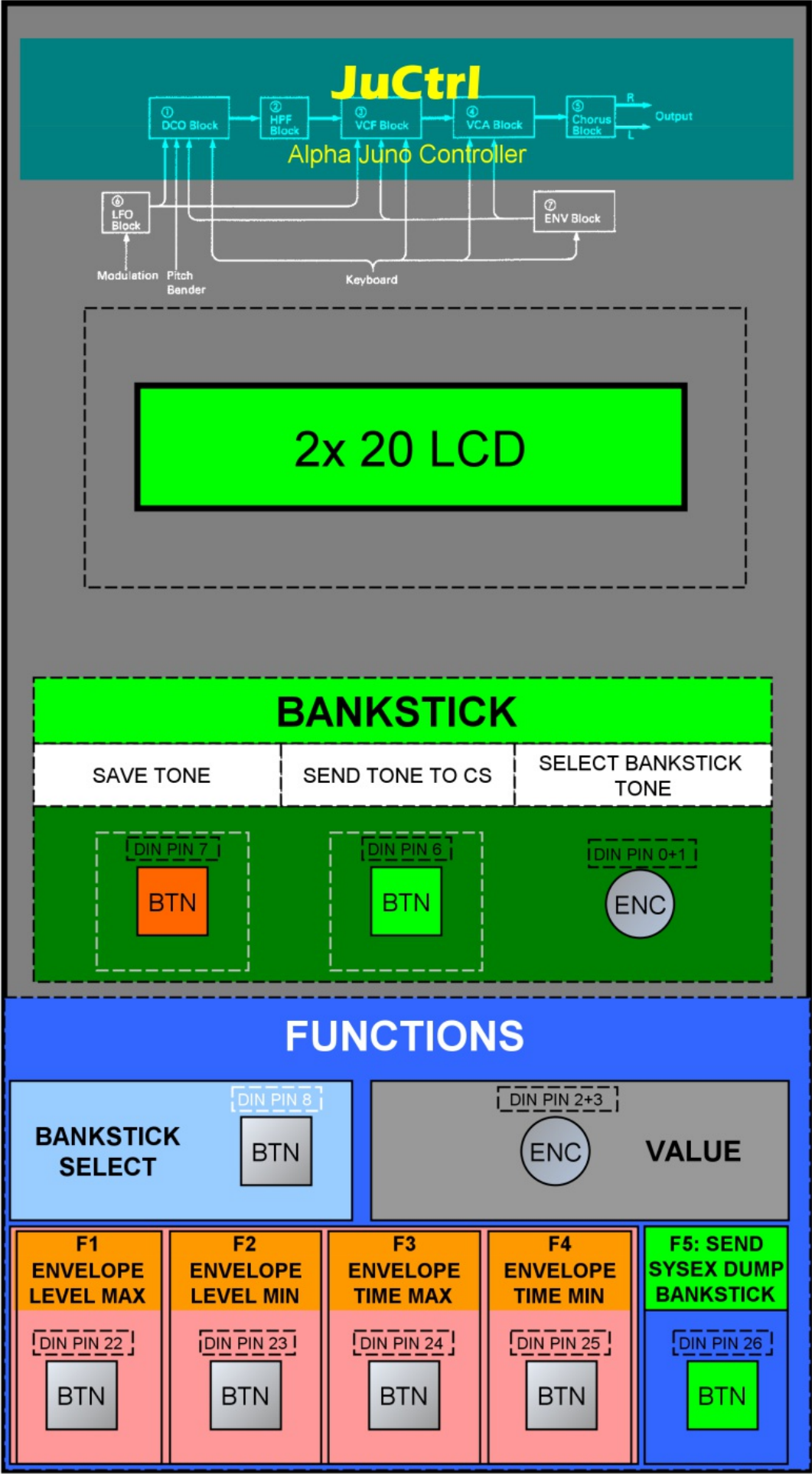
## Details

- Ju Control CS (LED's, Buttons, Encoders, LCD) | ⇒ [juctrl\\_cs\\_mbhp\\_btn\\_led\\_enc\\_lcd\\_pin\\_numbers\\_and\\_symbols.pdf](#) (08/2012)
- Ju Control MBHP DIN & DOUT | ⇒ [juctrlidindout.pdf](#) (08/2012)

- JuCtrl Juno MIDI IO dataflow (overview) | ⇒ [juctrldataflowoverview.pdf](#) (08/2012)

## Notes

- **Note:** Set **SYSEX ON** @AlphaJuno (JuCtrl will not work if SYSEX = off)
- **Note:** JuCtrl CS will pick up all the TONE (Sound) Parameters automatically - if you make changes @Alpha Juno
- **Note: HOW TO SET JUNO SYSEX ON**
  1. @Alpha Juno: Push the [MIDI] Button as many times until the MIDI SYSEX OPTION "MIDI EXCL" appears.
  2. Use the dial for changing.
  3. By writing the data of the MIDI Function setting into the back-up memory, it can be retained even when the Juno is turned off:
    - set the Memory Protect Switch to OFF position. Push the MIDI Button.
    - While holding the Write Button down, push the MIDI Button. The Juno Display will change to: "Write MIDI FUNC."
    - When the MIDI Button is pushed: "Write Complete!"
- **Note: WRITE JUNO TONE DATA TO BANKSTICK**
  1. SELECT THE PREFERRED BANKSTICK (1-8) with [SELECT BANKSTICK] BUTTON and [VALUE] ENCODER
  2. SELECT YOUR PREFERRED BANKSTICK AREA with the [MIDI ProgChange] ENCODER
    - MIDI ProgChange = 1-64 = You will WRITE Juno Tone Colours to BANKSTICK 1 -64
    - MIDI ProgChange = 65-128 = You will WRITE Juno Tone Colours TO BANKSTICK 65 -128
  1. Set [PRESET] (64x PRESET TONE COLOURS) or [MEMORY] (64x MEMORY TONE COLOURS) @Alpha Juno
  2. PRESS: [DATA TRANSFER] + [WRITE] + [DUMP] @Alpha Juno
  3. Now JuCtrl will RECEIVE 64 TONE COLOURS via SYSEX-DATA and write 64x TONE PATCHES to your selected BANKSTICK.
    - All Done.
    - BROWNS THE STORED TONE COLOURS with the "SELECT BANKSTICK TONE" ENCODER (0-127)
    - THE TONE NAME WILL APPEAR ON THE JuCtrl LCD. LOAD A STORED TONE COLOUR WITH THE BUTTON "SEND TONE TO CS"
    - NOW THE CS IS LOADED.
    - PRESS [SEND TONE TO JUNO] BUTTON for WRITING THE CURRENT CS DATA BACK TO ALPHA JUNO
- **Note: ENVELOPE FUNCTIONS**
  - There are some ENVELOPE FUNCTIONS:
    1. LEVEL MAX: set all ENVELOPE LEVEL to max value (127)
    2. LEVEL MIN: set all ENVELOPE LEVEL to min value (0)
    3. ENVELOPE TIME MAX: set all ENVELOPE TIME PARAMETER to max value (127)
    4. ENVELOPE TIME MIN: set all ENVELOPE TIME PARAMETER to min value (0)
    5. IF YOUR LAST ACTION (@CS) WAS AN ENVELOPE MANIPULATION, YOU CAN MANIPULATE ALL TIME or LEVEL PARAMETER with the [VALUE] ENCODER



# ProgChange

• **Juno ProgChange & JuCtrl Bankstick TONE (overview)**

JuCtrl	MIDI	Juno	Alpha Juno	JuCtrl BANKSTICK (1-8)			
LCD	ProgCh	BANK NUMBER	GROUP	TONE	BS content	BS content	BS content
1	0	1 1	MEMORY	0	MEMORY 1 1	or PRESET 1 1	or USER SAVED "JuCtrl CS"
2	1	1 2	MEMORY	1	MEMORY 1 2	or PRESET 1 2	or USER SAVED "JuCtrl CS"
3	2	1 3	MEMORY	2	MEMORY 1 3	or PRESET 1 3	or USER SAVED "JuCtrl CS"
4	3	1 4	MEMORY	3	MEMORY 1 4	or PRESET 1 4	or USER SAVED "JuCtrl CS"
5	4	1 5	MEMORY	4	MEMORY 1 5	or PRESET 1 5	or USER SAVED "JuCtrl CS"
6	5	1 6	MEMORY	5	MEMORY 1 6	or PRESET 1 6	or USER SAVED "JuCtrl CS"
7	6	1 7	MEMORY	6	MEMORY 1 7	or PRESET 1 7	or USER SAVED "JuCtrl CS"
8	7	1 8	MEMORY	7	MEMORY 1 8	or PRESET 1 8	or USER SAVED "JuCtrl CS"
9	8	2 1	MEMORY	8	MEMORY 2 1	or PRESET 2 1	or USER SAVED "JuCtrl CS"
10	9	2 2	MEMORY	9	MEMORY 2 2	or PRESET 2 2	or USER SAVED "JuCtrl CS"
11	10	2 3	MEMORY	10	MEMORY 2 3	or PRESET 2 3	or USER SAVED "JuCtrl CS"
12	11	2 4	MEMORY	11	MEMORY 2 4	or PRESET 2 4	or USER SAVED "JuCtrl CS"
13	12	2 5	MEMORY	12	MEMORY 2 5	or PRESET 2 5	or USER SAVED "JuCtrl CS"
14	13	2 6	MEMORY	13	MEMORY 2 6	or PRESET 2 6	or USER SAVED "JuCtrl CS"
15	14	2 7	MEMORY	14	MEMORY 2 7	or PRESET 2 7	or USER SAVED "JuCtrl CS"
16	15	2 8	MEMORY	15	MEMORY 2 8	or PRESET 2 8	or USER SAVED "JuCtrl CS"
17	16	3 1	MEMORY	16	MEMORY 3 1	or PRESET 3 1	or USER SAVED "JuCtrl CS"
18	17	3 2	MEMORY	17	MEMORY 3 2	or PRESET 3 2	or USER SAVED "JuCtrl CS"
19	18	3 3	MEMORY	18	MEMORY 3 3	or PRESET 3 3	or USER SAVED "JuCtrl CS"

20	19	3 4	MEMORY	19	MEMORY 3 4 or PRESET 3 4	or USER SAVED "JuCtrl CS"
21	20	3 5	MEMORY	20	MEMORY 3 5 or PRESET 3 5	or USER SAVED "JuCtrl CS"
22	21	3 6	MEMORY	21	MEMORY 3 6 or PRESET 3 6	or USER SAVED "JuCtrl CS"
23	22	3 7	MEMORY	22	MEMORY 3 7 or PRESET 3 7	or USER SAVED "JuCtrl CS"
24	23	3 8	MEMORY	23	MEMORY 3 8 or PRESET 3 8	or USER SAVED "JuCtrl CS"
25	24	4 1	MEMORY	24	MEMORY 4 1 or PRESET 4 1	or USER SAVED "JuCtrl CS"
26	25	4 2	MEMORY	25	MEMORY 4 2 or PRESET 4 2	or USER SAVED "JuCtrl CS"
27	26	4 3	MEMORY	26	MEMORY 4 3 or PRESET 4 3	or USER SAVED "JuCtrl CS"
28	27	4 4	MEMORY	27	MEMORY 4 4 or PRESET 4 4	or USER SAVED "JuCtrl CS"
29	28	4 5	MEMORY	28	MEMORY 4 5 or PRESET 4 5	or USER SAVED "JuCtrl CS"
30	29	4 6	MEMORY	29	MEMORY 4 6 or PRESET 4 6	or USER SAVED "JuCtrl CS"
31	30	4 7	MEMORY	30	MEMORY 4 7 or PRESET 4 7	or USER SAVED "JuCtrl CS"
32	31	4 8	MEMORY	31	MEMORY 4 8 or PRESET 4 8	or USER SAVED "JuCtrl CS"
33	32	5 1	MEMORY	32	MEMORY 5 1 or PRESET 5 1	or USER SAVED "JuCtrl CS"
34	33	5 2	MEMORY	33	MEMORY 5 2 or PRESET 5 2	or USER SAVED "JuCtrl CS"
35	34	5 3	MEMORY	34	MEMORY 5 3 or PRESET 5 3	or USER SAVED "JuCtrl CS"
36	35	5 4	MEMORY	35	MEMORY 5 4 or PRESET 5 4	or USER SAVED "JuCtrl CS"
37	36	5 5	MEMORY	36	MEMORY 5 5 or PRESET 5 5	or USER SAVED "JuCtrl CS"
38	37	5 6	MEMORY	37	MEMORY 5 6 or PRESET 5 6	or USER SAVED "JuCtrl CS"
39	38	5 7	MEMORY	38	MEMORY 5 7 or PRESET 5 7	or USER SAVED "JuCtrl CS"
40	39	5 8	MEMORY	39	MEMORY 5 8 or PRESET 5 8	or USER SAVED "JuCtrl CS"
41	40	6 1	MEMORY	40	MEMORY 6 1 or PRESET 6 1	or USER SAVED "JuCtrl CS"
42	41	6 2	MEMORY	41	MEMORY 6 2 or PRESET 6 2	or USER SAVED "JuCtrl CS"
43	42	6 3	MEMORY	42	MEMORY 6 3 or PRESET 6 3	or USER SAVED "JuCtrl CS"
44	43	6 4	MEMORY	43	MEMORY 6 4 or PRESET 6 4	or USER SAVED "JuCtrl CS"

45	44	6 5	MEMORY	44	MEMORY 6 5 or PRESET 6 5	or USER SAVED "JuCtrl CS"
46	45	6 6	MEMORY	45	MEMORY 6 6 or PRESET 6 6	or USER SAVED "JuCtrl CS"
47	46	6 7	MEMORY	46	MEMORY 6 7 or PRESET 6 7	or USER SAVED "JuCtrl CS"
48	47	6 8	MEMORY	47	MEMORY 6 8 or PRESET 6 8	or USER SAVED "JuCtrl CS"
49	48	7 1	MEMORY	48	MEMORY 7 1 or PRESET 7 1	or USER SAVED "JuCtrl CS"
50	49	7 2	MEMORY	49	MEMORY 7 2 or PRESET 7 2	or USER SAVED "JuCtrl CS"
51	50	7 3	MEMORY	50	MEMORY 7 3 or PRESET 7 3	or USER SAVED "JuCtrl CS"
52	51	7 4	MEMORY	51	MEMORY 7 4 or PRESET 7 4	or USER SAVED "JuCtrl CS"
53	52	7 5	MEMORY	52	MEMORY 7 5 or PRESET 7 5	or USER SAVED "JuCtrl CS"
54	53	7 6	MEMORY	53	MEMORY 7 6 or PRESET 7 6	or USER SAVED "JuCtrl CS"
55	54	7 7	MEMORY	54	MEMORY 7 7 or PRESET 7 7	or USER SAVED "JuCtrl CS"
56	55	7 8	MEMORY	55	MEMORY 7 8 or PRESET 7 8	or USER SAVED "JuCtrl CS"
57	56	8 1	MEMORY	56	MEMORY 8 1 or PRESET 8 1	or USER SAVED "JuCtrl CS"
58	57	8 2	MEMORY	57	MEMORY 8 2 or PRESET 8 2	or USER SAVED "JuCtrl CS"
59	58	8 3	MEMORY	58	MEMORY 8 3 or PRESET 8 3	or USER SAVED "JuCtrl CS"
60	59	8 4	MEMORY	59	MEMORY 8 4 or PRESET 8 4	or USER SAVED "JuCtrl CS"
61	60	8 5	MEMORY	60	MEMORY 8 5 or PRESET 8 5	or USER SAVED "JuCtrl CS"
62	61	8 6	MEMORY	61	MEMORY 8 6 or PRESET 8 6	or USER SAVED "JuCtrl CS"
63	62	8 7	MEMORY	62	MEMORY 8 7 or PRESET 8 7	or USER SAVED "JuCtrl CS"
64	63	8 8	MEMORY	63	MEMORY 8 8 or PRESET 8 8	or USER SAVED "JuCtrl CS"
65	64	1 1	PRESET	64	PRESET 1 1 or MEMORY 1 1	or USER SAVED "JuCtrl CS"
66	65	1 2	PRESET	65	PRESET 1 2 or MEMORY 1 2	or USER SAVED "JuCtrl CS"
67	66	1 3	PRESET	66	PRESET 1 3 or MEMORY 1 3	or USER SAVED "JuCtrl CS"
68	67	1 4	PRESET	67	PRESET 1 4 or MEMORY 1 4	or USER SAVED "JuCtrl CS"

69	68	1 5	PRESET	68	PRESET 1 5	or MEMORY 1 5	or USER SAVED "JuCtrl CS"
70	69	1 6	PRESET	69	PRESET 1 6	or MEMORY 1 6	or USER SAVED "JuCtrl CS"
71	70	1 7	PRESET	70	PRESET 1 7	or MEMORY 1 7	or USER SAVED "JuCtrl CS"
72	71	1 8	PRESET	71	PRESET 1 8	or MEMORY 1 8	or USER SAVED "JuCtrl CS"
73	72	2 1	PRESET	72	PRESET 2 1	or MEMORY 2 1	or USER SAVED "JuCtrl CS"
74	73	2 2	PRESET	73	PRESET 2 2	or MEMORY 2 2	or USER SAVED "JuCtrl CS"
75	74	2 3	PRESET	74	PRESET 2 3	or MEMORY 2 3	or USER SAVED "JuCtrl CS"
76	75	2 4	PRESET	75	PRESET 2 4	or MEMORY 2 4	or USER SAVED "JuCtrl CS"
77	76	2 5	PRESET	76	PRESET 2 5	or MEMORY 2 5	or USER SAVED "JuCtrl CS"
78	77	2 6	PRESET	77	PRESET 2 6	or MEMORY 2 6	or USER SAVED "JuCtrl CS"
79	78	2 7	PRESET	78	PRESET 2 7	or MEMORY 2 7	or USER SAVED "JuCtrl CS"
80	79	2 8	PRESET	79	PRESET 2 8	or MEMORY 2 8	or USER SAVED "JuCtrl CS"
81	80	3 1	PRESET	80	PRESET 3 1	or MEMORY 3 1	or USER SAVED "JuCtrl CS"
82	81	3 2	PRESET	81	PRESET 3 2	or MEMORY 3 2	or USER SAVED "JuCtrl CS"
83	82	3 3	PRESET	82	PRESET 3 3	or MEMORY 3 3	or USER SAVED "JuCtrl CS"
84	83	3 4	PRESET	83	PRESET 3 4	or MEMORY 3 4	or USER SAVED "JuCtrl CS"
85	84	3 5	PRESET	84	PRESET 3 5	or MEMORY 3 5	or USER SAVED "JuCtrl CS"
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93	92	4 5	PRESET	92	PRESET 4 5	or MEMORY 4 5	or USER SAVED "JuCtrl CS"

94	93	4 6	PRESET	93	PRESET 4 6	or MEMORY 4 6	or USER SAVED "JuCtrl CS"
95	94	4 7	PRESET	94	PRESET 4 7	or MEMORY 4 7	or USER SAVED "JuCtrl CS"
96	95	4 8	PRESET	95	PRESET 4 8	or MEMORY 4 8	or USER SAVED "JuCtrl CS"
97	96	5 1	PRESET	96	PRESET 5 1	or MEMORY 5 1	or USER SAVED "JuCtrl CS"
98	97	5 2	PRESET	97	PRESET 5 2	or MEMORY 5 2	or USER SAVED "JuCtrl CS"
99	98	5 3	PRESET	98	PRESET 5 3	or MEMORY 5 3	or USER SAVED "JuCtrl CS"
100	99	5 4	PRESET	99	PRESET 5 4	or MEMORY 5 4	or USER SAVED "JuCtrl CS"
101	100	5 5	PRESET	100	PRESET 5 5	or MEMORY 5 5	or USER SAVED "JuCtrl CS"
102	101	5 6	PRESET	101	PRESET 5 6	or MEMORY 5 6	or USER SAVED "JuCtrl CS"
103	102	5 7	PRESET	102	PRESET 5 7	or MEMORY 5 7	or USER SAVED "JuCtrl CS"
104	103	5 8	PRESET	103	PRESET 5 8	or MEMORY 5 8	or USER SAVED "JuCtrl CS"
105	104	6 1	PRESET	104	PRESET 6 1	or MEMORY 6 1	or USER SAVED "JuCtrl CS"
106	105	6 2	PRESET	105	PRESET 6 2	or MEMORY 6 2	or USER SAVED "JuCtrl CS"
107	106	6 3	PRESET	106	PRESET 6 3	or MEMORY 6 3	or USER SAVED "JuCtrl CS"
108	107	6 4	PRESET	107	PRESET 6 4	or MEMORY 6 4	or USER SAVED "JuCtrl CS"
109	108	6 5	PRESET	108	PRESET 6 5	or MEMORY 6 5	or USER SAVED "JuCtrl CS"
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111	110	6 7	PRESET	110	PRESET 6 7	or MEMORY 6 7	or USER SAVED "JuCtrl CS"
112	111	6 8	PRESET	111	PRESET 6 8	or MEMORY 6 8	or USER SAVED "JuCtrl CS"
113	112	7 1	PRESET	112	PRESET 7 1	or MEMORY 7 1	or USER SAVED "JuCtrl CS"
114	113	7 2	PRESET	113	PRESET 7 2	or MEMORY 7 2	or USER SAVED "JuCtrl CS"
115	114	7 3	PRESET	114	PRESET 7 3	or MEMORY 7 3	or USER SAVED "JuCtrl CS"
116	115	7 4	PRESET	115	PRESET 7 4	or MEMORY 7 4	or USER SAVED "JuCtrl CS"
117	116	7 5	PRESET	116	PRESET 7 5	or MEMORY 7 5	or USER SAVED "JuCtrl CS"



118	117	7 6	PRESET	117	PRESET 7 6	or MEMORY 7 6	or USER SAVED "JuCtrl CS"
119	118	7 7	PRESET	118	PRESET 7 7	or MEMORY 7 7	or USER SAVED "JuCtrl CS"
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122	121	8 2	PRESET	121	PRESET 8 2	or MEMORY 8 2	or USER SAVED "JuCtrl CS"
123	122	8 3	PRESET	122	PRESET 8 3	or MEMORY 8 3	or USER SAVED "JuCtrl CS"
124	123	8 4	PRESET	123	PRESET 8 4	or MEMORY 8 4	or USER SAVED "JuCtrl CS"
125	124	8 5	PRESET	124	PRESET 8 5	or MEMORY 8 5	or USER SAVED "JuCtrl CS"
126	125	8 6	PRESET	125	PRESET 8 6	or MEMORY 8 6	or USER SAVED "JuCtrl CS"
127	126	8 7	PRESET	126	PRESET 8 7	or MEMORY 8 7	or USER SAVED "JuCtrl CS"
128	127	8 8	PRESET	127	PRESET 8 8	or MEMORY 8 8	or USER SAVED "JuCtrl CS"

# Project Status

09/2012

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||
|| --- Project Start [28 October 2011]:
|| --- 100% JuCtrl MBHP DIN, DOUT, LCD, ENC
|| --- 100% MBHP IIC MIDI Module (one extra MIDI IO for Juno)
|| --- 100% CC MIDI IN --->[Ju Control (MIDI CC to SYSEX Conversation)] --
->MIDI OUT--->[Juno]
|| --- 100% Program Change (Sound Patch) via CS ENC
|| --- 100% Send Individual CS Controller Values to Juno (Juno IPR-Mode
SYSEX, CC)
|| --- 100% Receive Individual Tone Parameters from Juno (Juno IPR-Mode
SYSEX)
|| --- 100% Send All CS Tone Parameters to Juno (Juno APR-Mode Sysex)
|| --- 100% Receive All Tone Parameters from Juno(Juno APR-Mode Sysex)
|| --- 100% HW: Update Core8 >> PIC18F4620 (Need more Program Memory and
SRAM for BLD-Mode Sysex Data)
|| --- 100% Bankstick (BS 1-8 = 8*128 Tone Patches)
|| --- 100% ENVELOPE functions (BTN F1-F4)
|| --- 100% Send Bankstick sysex-dump (Tone Backup)
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# Software

- <http://www.subf.net/midibox/JuCtrl/JuCtrlV100018F4620.zip> (09/2012)

# Links

1. <http://midibox.org/forums/topic/16197-ju-control/>
2. [http://en.wikipedia.org/wiki/Roland\\_Alpha\\_Juno](http://en.wikipedia.org/wiki/Roland_Alpha_Juno)
3. <http://www.vintagesynth.com/roland/ajuno1.php>

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