

MSQ-CC-LRE

MotionSeQuencer for ControlChanges for 2xLRE8x2 Boards

Synth-Patch-Editor & Motion-Sequencer 4 ControlChange (= CC-Automation)



Video

Introduction

Controls and automate a Nord Drum2 (Drum-Synth)[NORD DRUM 2](#)

It acts as:

- **Midi Merger** NTE,CLK,PC merge with CC... - **Patch Manager** it replaces the Synths internal Patch Storage, each PC Number from your Sequencer is added by the BANK CC (CC 32), where each Nr is ADD 128 PC Numbers more...
- **Motion Sequencer** Record your Controller Movements in a Sequence in 32th Resultion @ maximal

256 Steps length

Features

- **Remote your Synths** by: 8x Midichannels with up to 32x Control Change (CC)
 - **Save the Patches** and dump it to Synth
 - **Load hundrets of Patches** via received Program Change + the Bank-CC (CC32)
 - **Save Patches** via CC24 + CC value 0-127... when sending before a BankCC32 you can expand that to 128x128 patches
 - **Record CC-Motion-Sequences - PLAY Motions-Sequences** up to 256 steps @ 32th rate - **VELOCITY MORPH** Add Velocity-Ammount to CCs
 - **MERGE** incoming Midi-Notes/Clock/Pitchbend with Automated CCs
 - **Set Sequencer Beatstructure** - how to interpret Clock-ticks (4/4, 5/4, 6/4, 7/4...) - CC23
 - **Global Page:** for example you use 8 similar Drum-Voices, with the Global you have 8 channel strips with dedicated Controlls, for example:
8xVolume, 8xTone/Noise-Mix, 8xDistortion, 8xClick
- if you have one Synth over 2xMSQ_CC_LRE Tracks(booth set to MidiChannel 0, to get 64CCs instead of 32), then the Global Page: have the ability to show/edit a parameter from Track1Voice on Track1Global, and from Track2Voice on Track2Global... it depends how you set the Midichannel in the Systemsettings (which are hardcodet but via Mapping Array changeable)
- for one multipart-synth, MSQ_CC_LRE do all the Preset Store, and Automations, so it is one Unit > to use the Unit in a other way would make all the Patches (128x128 patches) useless, so once done, its bound to it, load all with Programchange! minimal is better here, there will be other **MSQs** outthere see [MSQ-CC-BCR](#)

Hardware Requirements

External Requirement:(for example)

- Melody/Clock Source with ProgramChange-Output: [midibox_seq_v4l](#) oops that dont do PC...
- Melody/Clock Destination: NordDrum 2

Midibox:

- [core32](#)
- [1xMidi IO](#) connect 1 midicontroller and 1 Note/Clock-Source/Destination
- SD-Card, formatted with FAT32, and the file "bcr1.syx" on it
- Soldering Iron, Wires, PCB....
- USB Power Supply... I tried to use the Midi-BUS-Power from BCR2000 but it is too weak!
- 2x LRE 8x2 [mb-lre8x2cs_pcb](#)
- 3 extra Encoders and Ledrings (to controll the unit) + Pushfunction inclusive Button LED
- 8 Momentary Buttons without LED
- 1 Momentary Button with LED
- 1x DINX4
- 1x DOUTX4

Setting

Cabeling

MidilO PortB Out >> Synth Midi IN

MidilO PortB In >> Clock+Notes

Frontpanels

Stickers

LCD

it would be possible to add 16 OLEDs but... but i dont have the money for that right now....

MBHP

Software

Firmware

V1. from 9.05.2018 [msq_cc_lre_v0.norddrum2.zip](#)

hardcodet for a NordDrum2 - but change-able in Mapping via a Array in Sourcecode:

this is the maping which says wich of the 32 internal CCs are one of the outhernal CCs (0-127):

```
// 4 CC Route Mode = 0: = In Synthesizer [Internal CC Nr] = value of external CC -> [Remote/Source] = Value of Synth/Destination
const u8 CC_Map0[32] = { // CC_Map0 [Part1]
    // CC_Map0 [Map0Channel]
    // 1st Row Horizontal
    0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, // 3rd Row Horizontal
    16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, // 4th Row Horizontal
    32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, // Nord Drum 2 Voice 1 MultiCh 7
    48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, // Nord Drum 2 Voice 2 MultiCh 8
    64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, // Nord Drum 2 Voice 3 MultiCh 9
    80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, // Nord Drum 2 Voice 4 MultiCh 10
    96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, // Nord Drum 2 Voice 5 MultiCh 11
    112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, // Nord Drum 2 Voice 6 MultiCh 12
    128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, // not in use
    144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, // not in use
    160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, // not in use
    176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, // not in use
    192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, // not in use
    208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, // not in use
    224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, // not in use
    240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, // not in use
    256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, // not in use
    272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, // not in use
    288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, // not in use
    304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, // not in use
    320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, // not in use
    335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, // not in use
    351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, // not in use
    366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, // not in use
    381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, // not in use
    396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, // not in use
    412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, // not in use
    427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, // not in use
    442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, // not in use
    457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, // not in use
    472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, // not in use
    487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, // not in use
    502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, // not in use
    517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, // not in use
    532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, // not in use
    547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, // not in use
    562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, // not in use
    577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, // not in use
    592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, // not in use
    607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, // not in use
    622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, // not in use
    637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, // not in use
    652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, // not in use
    667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, // not in use
    682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, // not in use
    697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, // not in use
    712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, // not in use
    727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, // not in use
    742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, // not in use
    757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, // not in use
    772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, // not in use
    787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, // not in use
    802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, // not in use
    817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, // not in use
    832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, // not in use
    847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, // not in use
    862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, // not in use
    877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, // not in use
    892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, // not in use
    907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, // not in use
    922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, // not in use
    937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, // not in use
    952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, // not in use
    967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, // not in use
    982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, // not in use
    997, 998, 999, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, // not in use
    1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, // not in use
    1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, // not in use
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    1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, // not in use
    1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, // not in use
    1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, // not in use
    1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, // not in use
    1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149, 1150, 1151, // not in use
    1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, // not in use
    1166, 1167, 1168, 1169, 1170, 1171, 1172, 1173, 1174, 1175, 1176, 1177, 1178, 1179, // not in use
    1180, 1181, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1192, 1193, // not in use
    1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201, 1202, 1203, 1204, 1205, 1206, 1207, // not in use
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    1236, 1237, 1238, 1239, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1249, // not in use
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    1530, 1531, 1532, 1533, 1534, 1535, 1536, 1537, 1538, 1539, 1540, 1541, 1542, 1543, // not in use
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    1572, 1573, 1574, 1575, 1576, 1577, 1578, 1579, 1580, 1581, 1582, 1583, 1584, 1585, // not in use
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    1614, 1615, 1616, 1617, 1618, 1619, 1620, 1621, 1622, 1623, 1624, 1625, 1626, 1627, // not in use
    1628, 1629, 1630, 1631, 1632, 1633, 1634, 1635, 1636, 1637, 1638, 1639, 1640, 1641, // not in use
    1642, 1643, 1644, 1645, 1646, 1647, 1648, 1649, 1650, 1651, 1652, 1653, 1654, 1655, // not in use
    1656, 1657, 1658, 1659, 1660, 1661, 1662, 1663, 1664, 1665, 1666, 1667, 1668, 1669, // not in use
    1670, 1671, 1672, 1673, 1674, 1675, 1676, 1677, 1678, 1679, 1680, 1681, 1682, 1683, // not in use
    1684, 1685, 1686, 1687, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, // not in use
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    1754, 1755, 1756, 1757, 1758, 1759, 1760, 1761, 1762, 1763, 1764, 1765, 1766, 1767, // not in use
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    1782, 1783, 1784, 1785, 1786, 1787, 1788, 1789, 1790, 1791, 1792, 1793, 1794, 1795, // not in use
    1796, 1797, 1798, 1799, 1800, 1801, 1802, 1803, 1804, 1805, 1806, 1807, 1808, 1809, // not in use
    1810, 1811, 1812, 1813, 1814, 1815, 1816, 1817, 1818, 1819, 1820, 1821, 1822, 1823, // not in use
    1824, 1825, 1826, 1827, 1828, 1829, 1830, 1831, 1832, 1833, 1834, 1835, 1836, 1837, // not in use
    1838, 1839, 1840, 1841, 1842, 1843, 1844, 1845, 1846, 1847, 1848, 1849, 1850, 1851, // not in use
    1852, 1853, 1854, 1855, 1856, 1857, 1858, 1859, 1860, 1861, 1862, 1863, 1864, 1865, // not in use
    1866, 1867, 1868, 1869, 1870, 1871, 1872, 1873, 1874, 1875, 1876, 1877, 1878, 1879, // not in use
    1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, // not in use
    1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, // not in use
    1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920, 1921, // not in use
    1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, // not in use
    1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, // not in use
    1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, // not in use
    1964
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CC Routing to Synths

MSQ_CC_LRE internal i have 8×32 CCs, they are always identical.

but with a simple input output matrix i can decide which CC it gets in real world.

each of the 8 Part can have midichannle 0-15...

So we talking about Mapping... in the moment it is made in the source code with a simple array.

To Do

alot, but since it is base on MSQ-CC-BCR! most is done, and its running solid

maybe scale min max values for CC: for example different synths have only 0-3value instead of 0-127, by different functions like WAVEFORM...) - this will be interesting when using other synths then nord drum...

Resources

Community users working on it

- **Phatline** = Programming, Documentation...

Just let a Private message on the forum to user already involved, the sourcecode is includet in the firmware .zip!!!

From:

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