GURU

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v1.5 MIDI Implementation guide

fxpansion

GURU v1.5 MIDI Implementation guide

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Introduction

GURU v1.5's new MIDI implementation is much improved and feature-packed.

Please disregard the MIDI mappings described in the v1.0 manual.

1: MIDI Channel mapping summary

- Channels 1..8 are mapped to Engines 1..8
- Channel 9 is broadcast to all Engines ("Omni" mode)
- Channel 10 is the "Drum Map" channel – all pads from all engines are mapped across notes 0–127
- Channel 11 controls the currently selected engine in the GURU user interface
- Channel 12 contains special commands and the ability to select Pads, Patterns and Engines for editing
- Channels 13-16 are reserved for future use.

Note: There are various different conventions in use for naming MIDI Notes – some sequencers refer to MIDI Note #0 as "C -2", some as "C -1", and some as "C0". For the purposes of this document, "C-2" refers to MIDI Note #0, "C-1" to MIDI Note #12, "C0" to MIDI Note #24, "C1" to #36, "C2" to #48, "C3" to #60 and so on.

2: A note about MIDI Learn: GURU 1.5 vs earlier versions

In v1.5, the MIDI Learn functions on the Pad context menu and in the Scenes view have been discarded.

GURU has a very powerful MIDI implementation but it is necessary to create a map for GURU in your MIDI control hardware. This document contains a full summary of all possible MIDI mappings.

3: Channels 1-8, 9, 11

Channels 1..8 = Engines 1..8 Channel9 = All Engines Channel 11 = Selected Engine

Note assignments

C-1 to B0 : Patterns 1-24

note no.	*note*	
12	C-1	Pattern 1
13	C# -1	Pattern 2
14	D-1	Pattern 3
15	D#-1	Pattern 4
16	E-1	Pattern 5
17	F-1	Pattern 6
18	F#-1	Pattern 7
19	G-1	Pattern 8
20	G#-1	Pattern 9
21	A-1	Pattern 10
22	A#-1	Pattern 11
23	B-1	Pattern 12
24	C0	Pattern 13
25	C#0	Pattern 14
26	D0	Pattern 15
27	D#0	Pattern 16
28	E0	Pattern 17
29	F0	Pattern 18
30	F#0	Pattern 19
31	G0	Pattern 20
32	G#0	Pattern 21
33	A0	Pattern 22
34	A#0	Pattern 23
35	B0	Pattern 24

C1-D#2 : Pads 1-16:-

note no.	*note*	*pad*	
36	C1	1	Kick1
37	C#1	2	Kick2
38	D1	3	Kick3
39	D#1	4	Kick4
40	E1	5	Snare1
41	F1	6	Snare2
42	F#1	7	Snare3
43	G1	8	Snare4
44	G#1	9	HiHat1
45	A1	10	HiHat2
46	A#1	11	HiHat3
47	B1	12	HiHat4
48	C2	13	Perc1
49	C#2	14	Perc2
50	D2	15	Perc3
60	D#2	16	Perc4

Commit and Undo functions

note no	*note*	
	G#2	Commit (in Record mode)
	A#2	Undo

(these functions are also available as MMC commands)

C3 to B6 : Scenes 1-48

note no.	*note*	
60	C3	Scene 1
61	C#3	Scene 2
62	D3	Scene 3
63	D#3	Scene 4
64	E3	Scene 5
65	F3	Scene 6
66	F#3	Scene 7
67	G3	Scene 8
68	G#3	Scene 9
69	A3	Scene 10
70	A#3	Scene 11
71	B3	Scene 12
72	C4	Scene 13
73	C#4	Scene 14
74	D4	Scene 15
75	D#4	Scene 16
76	E4	Scene 17
77	F4	Scene 18
78	F#4	Scene 19
79	G4	Scene 20
80	G#4	Scene 21
81	A4	Scene 22
82	A#4	Scene 23
83	B4	Scene 24
84	C5	Scene 25
85	C#5	Scene 26
86	D5	Scene 27
87	D#5	Scene 28
88	E5	Scene 29
89	F5	Scene 30
90	F#5	Scene 31
91	G5	Scene 32
92	G#5	Scene 33
93	A5	Scene 34
94	A#5	Scene 35
95	B5	Scene 36
96	C6	Scene 37
97	C#6	Scene 38
98	D6	Scene 39
99	D#6	Scene 40
100	E6	Scene 41
101	F6	Scene 42
102	F#6	Scene 43
103	G6	Scene 44
104	G#6	Scene 45
105	A6	Scene 46
106	A#6	Scene 47
107	B6	Scene 48

Main MIDI CC assignments

7:	Engine Volume*
10:	Engine Pan*
12:	Engine Tune*
13:	Engine Groove Amount
14:	Engine Groove Velocity Amount
15:	Aux 1 – select effect
16:	Aux 2 – select effect
17:	Aux 3 – select effect
18:	Mix Effect – select effect
19:	Master Effect – select effect
24-31 (ch.1):	Master FX Controls 1..8*
24 (ch.2-8):	Tempo Multiplier (Numerator)
25 (ch.2-8):	Tempo Multiplier (Denominator)
48-55 (all channels):	Coloured Pad Groups 1-8
56-63 (all channels):	Coloured FX Groups 1-8

[see 'Pad and FX Colour Groups MIDI CCs' on next page]

78:	Current pad/layer sample start point
79:	Current pad/layer sample end point
80:	Engine Mute
81:	Engine Solo
102-118:	Randomizer controls

[see 'Randomizer MIDI CC assignments on next page]

* also accessible via NRPN

Randomizer MIDI CC assignments

Channels 1-8, 9 and 11 share the same set of Randomizer MIDI CCs.

102	Reseed random number generator	111	Pad Edit, Current Pad
103	All pages	112	Pad Edit, Current Colour
104	Sequencer, Current Pad	113	Pad Edit, All Pads
105	Sequencer, Current Colour	114	Aux Effects, Current
106	Sequencer, All Pads	115	Aux Effects, All in Engine
107	Graph, Current Pad / Current Graph	116	Aux Effects, All Engines
108	All Graphs, Current Pad	117	Mix, Current Engine
109	All Pads, Current Graph	118	Mix, All Engines
110	All Graphs, All Pads		

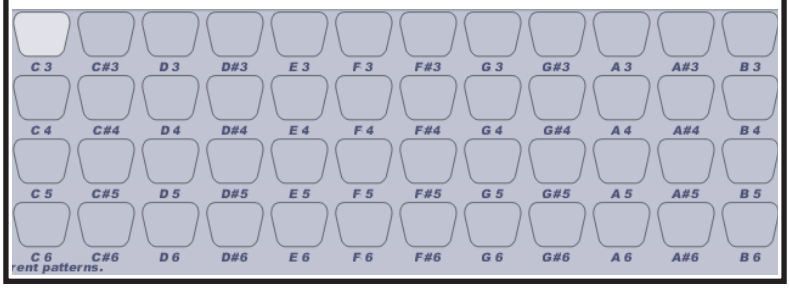
Pad and FX Colour Groups MIDI CCs

Channels 1-8, 9 and 11 share the same set of Pad and FX Colour groups.

48	Pad Group 1: Red	56	FX Group 1: Red
49	Pad Group 2: Orange	57	FX Group 2: Orange
50	Pad Group 3: Yellow	58	FX Group 3: Yellow
51	Pad Group 4: Green	59	FX Group 4: Green
52	Pad Group 5: Light Blue	60	FX Group 5: Light Blue
53	Pad Group 6: Blue	61	FX Group 6: Blue
54	Pad Group 7: Purple	62	FX Group 7: Purple
55	Pad Group 8: Grey	63	FX Group 8: Grey

Channels 1-8, 9, 11 note layout

C3 to B6 : Scenes 1-48

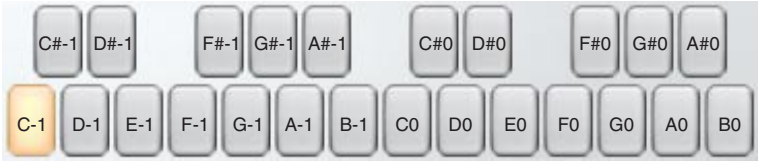


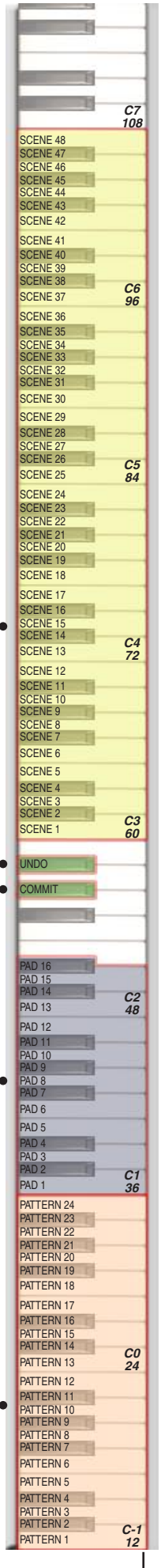
G#2 : Commit (in Record mode)

A#2 : Undo

C1 to D#2 : Pads 1-16

C -1 to B0 : Pattern keys 1-24





to C-2

4: Channel 12 – Selection and Special commands

Note assignments

note no.	*note*	
0	C-2	Panic

Edit scopes: Latching (L) and Momentary (M)

note no.	*note*	
5	F	layer only (L)
6	F#	all layers (M)
7	G	all layers (L)
8	G#	all in colour (M)
9	A	all in colour (L)
10	A#	all in engine (M)
11	B	all in engine (L)

C-1 to G-1: Select screen modes

note no.	*note*	
12	C-1	Pattern
13	C#-1	Graph select
14	D-1	Graph edit
15	D#-1	Pad edit
16	E-1	Aux effects
17	F-1	Mix
18	F#-1	Scenes
19	G-1	Options

C0 to D#1 : Engine Mute/Solo controls

note no.	*note*	
24	C0	Toggle Eng 1 Mute
25	C#0	Toggle Eng 2 Mute
26	D0	Toggle Eng 3 Mute
27	D#0	Toggle Eng 4 Mute
28	E0	Toggle Eng 5 Mute
29	F0	Toggle Eng 6 Mute
30	F#0	Toggle Eng 7 Mute
31	G0	Toggle Eng 8 Mute
32	G#0	Toggle Eng 1 Solo
33	A0	Toggle Eng 2 Solo
34	A#0	Toggle Eng 3 Solo
35	B0	Toggle Eng 4 Solo
36	C1	Toggle Eng 5 Solo
37	C#1	Toggle Eng 6 Solo
38	D1	Toggle Eng 7 Solo
39	D#1	Toggle Eng 8 Solo

E1 to B1 : Previous/Next selection controls

note no.	*note*	
40	E1	Previous Engine
41	F1	Next Engine
42	F#1	Previous Pad
43	G1	Next Pad
44	G#1	Previous Pattern
45	A1	Next Pattern
46	A#1	Previous Layer
47	B1	Next Layer

C2 to A2 : Transport and Record mode options

note no.	*note*	
48	C2	Pattern Keys NORMAL
49	C#2	COMMIT (when REC)
50	D2	Pattern Keys VELOCITY
51	D#2	UNDO (when REC)
52	E2	Pattern Keys CHROMATIC
53	F2	PLAY
53	G2	STOP
54 `	A2	Toggle REC

(Play, Stop, Rec, Commit and Undo functions also available as MMC commands)

C3 to B6: Selecting Pads, Engines and Patterns

The following notes are used for **selecting** the current Pad, Engine and Pattern. Please note that selecting Pads and Patterns is not the same as playing them using the relevant MIDI notes on channels 1-8, 9 and 11. However, if you use the 'Selected Pad follows MIDI input' and 'Pattern Editor follows currently playing pattern' settings, playing pads and patterns on channels 1-8, 9 and 11 also selects them.

C3-D#4 : Pads 1-16:-

note no.	*note*	*pad*	
60	C3	1	Kick1
61	C#3	2	Kick2
62	D3	3	Kick3
63	D#3	4	Kick4
64	E3	5	Snare1
65	F3	6	Snare2
66	F#3	7	Snare3
67	G3	8	Snare4
68	G#3	9	HiHat1
69	A3	10	HiHat2
70	A#3	11	HiHat3
71	B3	12	HiHat4
72	C4	13	Perc1
73	C#4	14	Perc2
74	D4	15	Perc3
75	D#4	16	Perc4

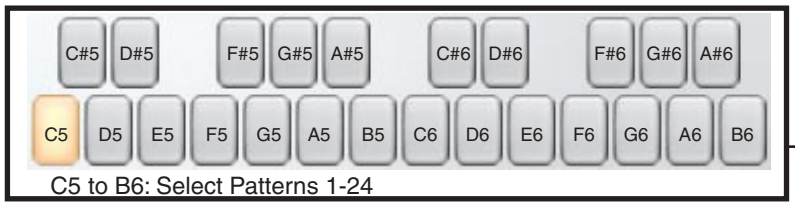
E4 - B4 :- Select Engines 1..8

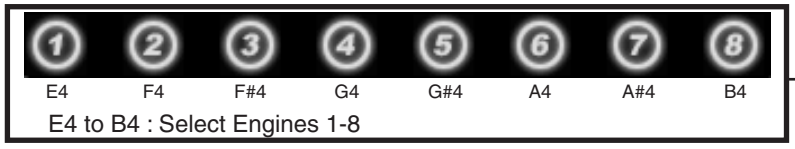
note no.	*note*	
76	E4	Engine 1
77	F4	Engine 2
78	F#4	Engine 3
79	G4	Engine 4
80	G#4	Engine 5
81	A4	Engine 6
82	A#4	Engine 7
83	B4	Engine 8

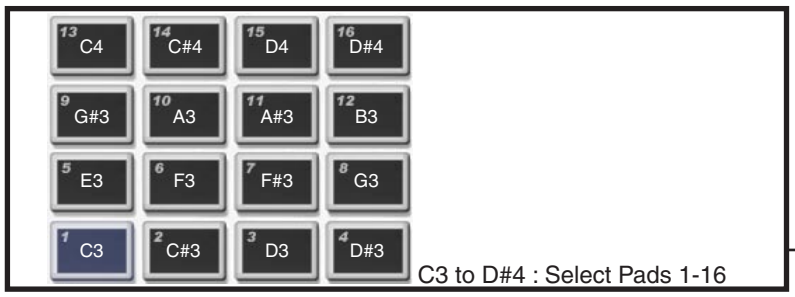
C5 to B6 : Patterns 1-24

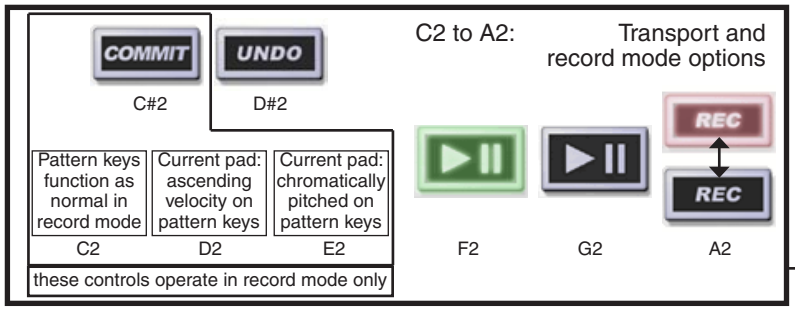
note no.	*note*	
84	C5	Pattern 1
85	C#5	Pattern 2
86	D5	Pattern 3
87	D#5	Pattern 4
88	E5	Pattern 5
89	F5	Pattern 6
90	F#5	Pattern 7
91	G5	Pattern 8
92	G#5	Pattern 9
93	A5	Pattern 10
94	A#5	Pattern 11
95	B5	Pattern 12
96	C6	Pattern 13
97	C#6	Pattern 14
98	D6	Pattern 15
99	D#6	Pattern 16
100	E6	Pattern 17
101	F6	Pattern 18
102	F#6	Pattern 19
103	G6	Pattern 20
104	G#6	Pattern 21
105	A6	Pattern 22
106	A#6	Pattern 23
107	B6	Pattern 24

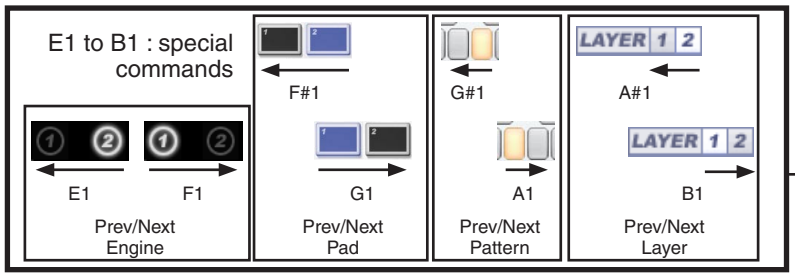
Channel 12 note layout

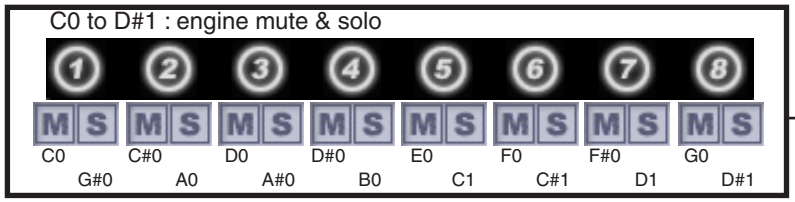


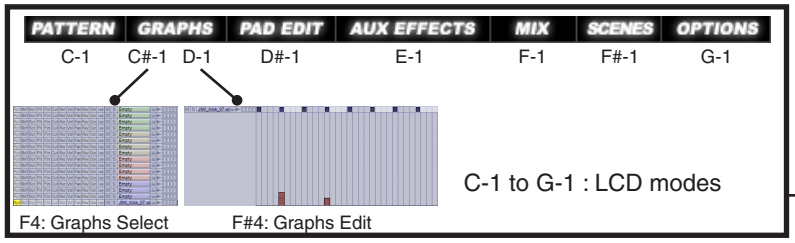


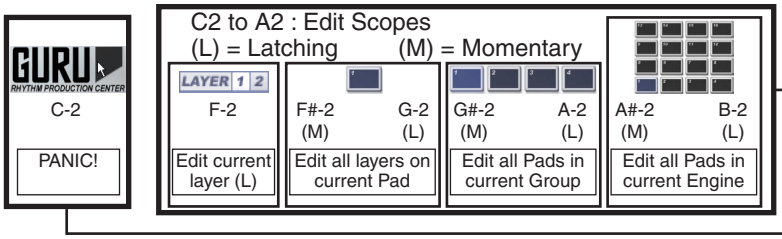


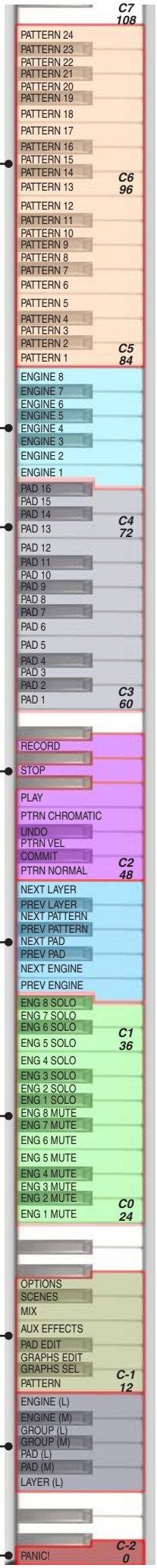












Channel 12 MIDI CC assignments

Edit Scopes: Latching (L) and Momentary (M)

Edit Scopes are used as modifiers allowing you to edit parameters across all layers on the current pad, all pads in the current group and all pads in the current engine.

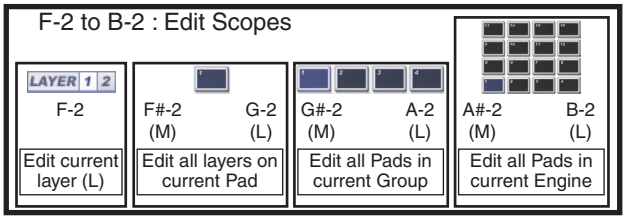
Momentary and latching control are provided for Edit Scopes.

Momentary controls must be held down while you adjust a control in order to operate. When the note is released, the Edit Scope returns to normal – layer only.

Latching controls do not require you to hold down the MIDI note for the Edit Scope to operate. Play the note once to activate the Edit Scope, and again to return to the previous Scope. Alternatively, enter another Edit Scope by playing its Latching MIDI note.

As well as being MIDI-controllable via MIDI keys 5-11 (F-2 to B-2), the Edit Scope can be changed between Latching values via MIDI CC #16. The following table shows the CC values for each Scope (CC control for Momentary operation is not possible).

note no.	*note*		*MIDI CC #16 value*
5	F	layer only (L)	0...31
6	F#	all layers (M)	
7	G	all layers (L)	32...64
8	G#	all in colour (M)	
9	A	all in colour (L)	65...96
10	A#	all in engine (M)	
11	B	all in engine (L)	97...128



MIDI CCs on channel 12

16	Edit Scope select (see above)
33	Gain
34	Pan
35	Tune
36	Fine
37	Cutoff
38	Rez
39	Type
40	Amp_Env_Attack
41	Amp_Env_Hold
42	Amp_Env_Release
43	FX_Env_Attack
44	FX_Env_Hold
45	FX_Env_Release
46	FX_Env_Cutoff_Send
47	FX_Env_Pitch_Send
48	FX_Number
49	Param_1
50	Param_2
51	Direct_FX
52	Aux_Send_1
53	Aux_Send_2
54	Aux_Send_3
55	Hidden Normalize
56	Playback Mode
57	PreDelay Ms
58	PreDelay Ticks
59	PreDelay Units
60	Layer Mute
61	Layer Solo
78	Current pad/layer sample start point
79	Current pad/layer sample end point

Note: most parameters can also be controlled via NRPN.

5: Channel 13 – Browser commands

Folders pane

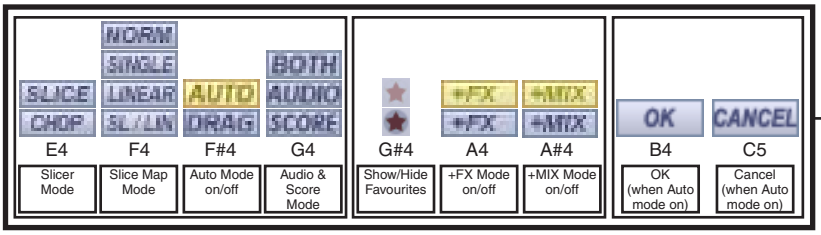
note no.	*note*	
24-43	C0-G1	Select Folders 1..20
44	G#1	Up 1 folder
45	A1	Down 1 folder
46	A#1	Up 20 folders
47	B1	Down 20 folders

Files pane

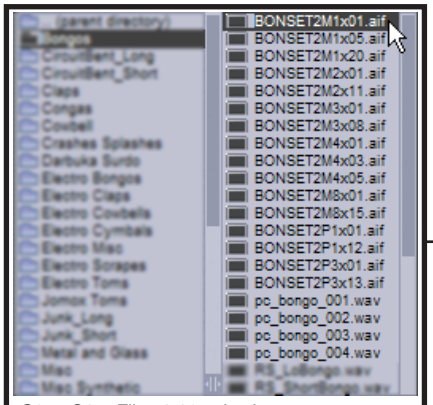
note no.	*note*	
48-67	C2-G3	Select Files 1..20
68	G#3	Up 1 file
69	A3	Down 1 file
70	A#3	Up 20 files
71	B3	Down 20 files

Other Browser controls

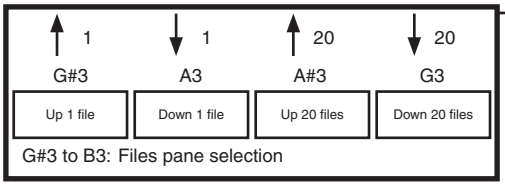
note no.	*note*	
72	C4	Select Patterns tab
73	C#4	Select Kits tab
74	D4	Select Hits tab
75	D#4	Select Loops tab
76	E4	Toggle slicer mode (loops only) Slice / Chop
77	F4	Cycle slicer mapping mode (loops only) Normal / Single / Linear / Single-Linear
78	F#4	Toggle Auto mode Auto / Drag
79	G4	Cycle Audio/Score mode (loops only) Audio / Score /Both mode (loops only)
80	G#4	Toggle Favourites mode
81	A4	Toggle +FX
82	A#4	Toggle +MIX
83	B4	OK (to load selected items in Auto mode)
84	C5	Cancel (with selected items in Auto mode)



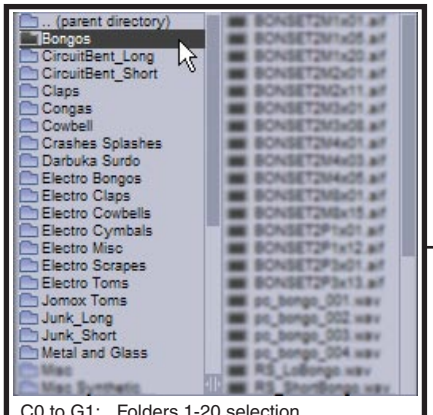
C4 to D#4: Browser Tab selection



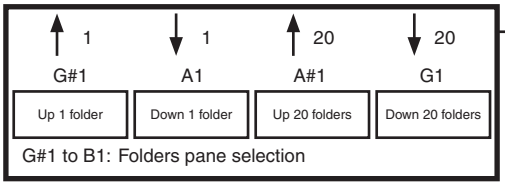
C2 to G3: Files 1-20 selection



G#3 to B3: Files pane selection

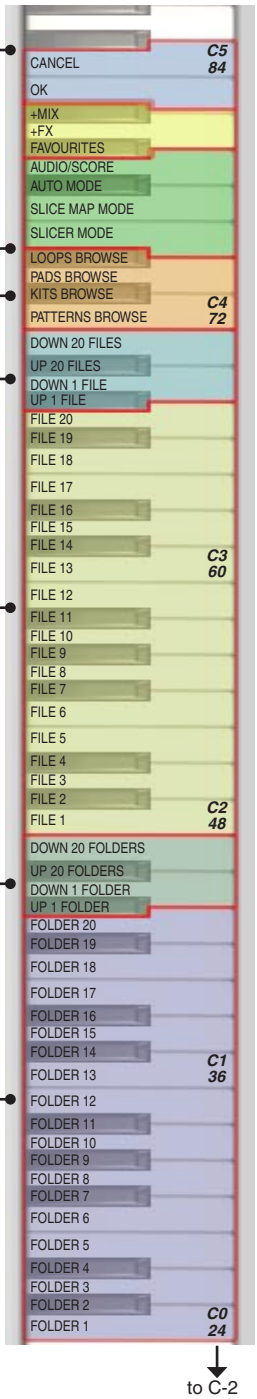


C0 to G1: Folders 1-20 selection



G#1 to B1: Folders pane selection

Note: Just as when driving the browser from the mouse or keyboard, the effect of selecting a file or folder depends on whether the browser is in Auto or Drag mode, and whether or not Quickplay is enabled.



to C-2

6: Channel 10 – Drum map

(note: “1Kick1” denotes “Engine 1, Kick #1”)

Engine 1

C-2 :	Kick1	E-2:	Snare1	G#-2:	HiHat1	C-1:	Perc1
C#-2:	Kick2	F-2:	Snare2	A-2:	HiHat2	C#-1:	Perc2
D-2 :	Kick3	F#-2:	Snare3	A#-2:	HiHat3	D-1:	Perc3
D#-2:	Kick4	G-2:	Snare4	B-2:	HiHat4	D#-1:	Perc4

Engine 2

E-1 :	Kick1	G#-1:	Snare1	C0:	HiHat1	E0:	Perc1
F-1:	Kick2	A-1:	Snare2	C#0:	HiHat2	F0:	Perc2
F#-1:	Kick3	A#-1:	Snare3	D0:	HiHat3	F#0:	Perc3
G-1:	Kick4	B-1:	Snare4	D#0:	HiHat4	G0:	Perc4

Engine 3

G#0 :	Kick1	C1:	Snare1	E1:	HiHat1	G#1:	Perc1
A0:	Kick2	C#1:	Snare2	F1:	HiHat2	A1:	Perc2
A#0:	Kick3	D1:	Snare3	F#1:	HiHat3	A#1:	Perc3
B0:	Kick4	D#1:	Snare4	G1:	HiHat4	B1:	Perc4

Engine 4

C2:	Kick1	E2:	Snare1	G#2:	HiHat1	C3:	Perc1
C#2	Kick2	F2:	Snare2	A2:	HiHat2	C#3:	Perc2
D2:	Kick3	F#2:	Snare3	A#2:	HiHat3	D3:	Perc3
D#2	Kick4	G2:	Snare4	B2:	HiHat4	D#3:	Perc4

Engine 5

E3 :	Kick1	G#3:	Snare1	C4:	HiHat1	E4:	Perc1
F3:	Kick2	A3:	Snare2	C#4:	HiHat2	F4:	Perc2
F#3:	Kick3	A#3:	Snare3	D4:	HiHat3	F#4:	Perc3
G3:	Kick4	B3:	Snare4	D#4:	HiHat4	G4:	Perc4

Engine 6

G#4 :	Kick1	C5:	Snare1	E5:	HiHat1	G#5:	Perc1
A4:	Kick2	C#5:	Snare2	F5:	HiHat2	A5:	Perc2
A#4:	Kick3	D5:	Snare3	F#5:	HiHat3	A#5:	Perc3
B4:	Kick4	D#5:	Snare4	G5:	HiHat4	B5:	Perc4

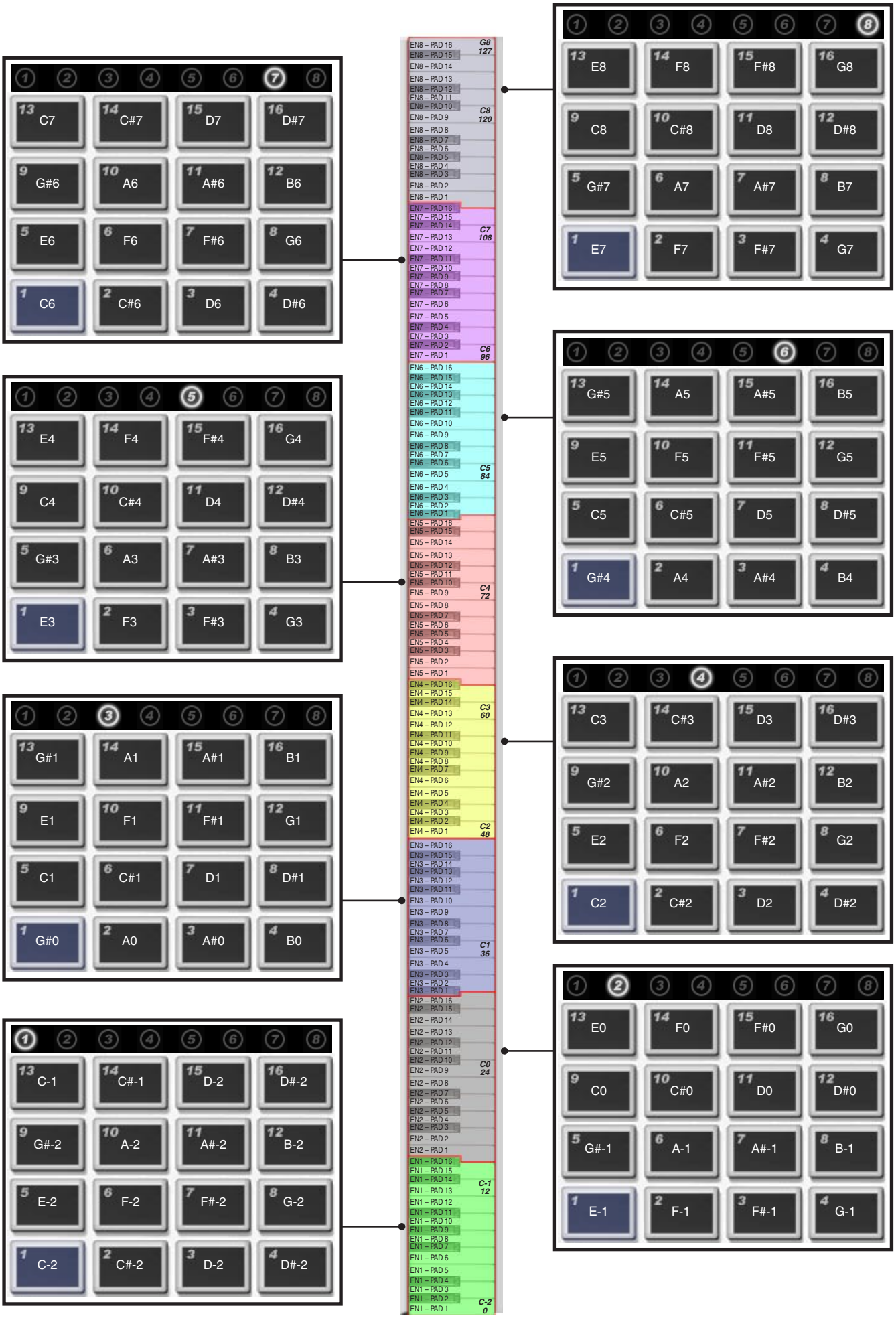
Engine 7

C6:	Kick1	E6:	Snare1	G#6:	HiHat1	C7:	Perc1
C#6	Kick2	F6:	Snare2	A6:	HiHat2	C#7:	Perc2
D6:	Kick3	F#6:	Snare3	A#6:	HiHat3	D7:	Perc3
D#6	Kick4	G6:	Snare4	B6:	HiHat4	D#7:	Perc4

Engine 8

E7:	Kick1	G#7:	Snare1	C8:	HiHat1	E8:	Perc1
F7	Kick2	A7:	Snare2	C#8:	HiHat2	F8:	Perc2
F#7	Kick3	A#7:	Snare3	D8:	HiHat3	F#8:	Perc3
G7	Kick4	B7:	Snare4	D#8:	HiHat4	G8:	Perc4

Channel 10 - Drum Map layout (all 8 engines)



7: NRPN implementation

Channel mapping:-

CH = 1..8 :- mapped to Engines 1..8
CH 9:- mapped to all Engines (“Omni” mode)
CH 10:- Master controls
CH 11:- mapped to currently selected engine (all pads addressable)
CH 12:- mapped to currently selected engine (remapped to selected pad)

Bitmask values (Normal channels 1-8, 9, 11):-

High byte (NRPN MSB)
7654321
ppppLLL
Low byte (NRPN LSB)
7654321
SSPPPPP

p = PAD [0x0 - 0xF --> Pads 1..16]
L = LAYER [0x0 - 0x7 --> Layers 1..8]
S = SCOPE [0 = THIS LAYER, 1 = ALL LAYER, 2 = ALL LAYER & PAD, 3 = Just-In-Time Mode, see end of document]
P = PARAM [see parameter table below]

Parameter table, PAD parameters (ch 1-8, 9, 11):-

0: Gain	8: Amp Env Hold	16: FX Parameter 1
1: Pan	9: Amp Env Release	17: FX Parameter 2
2: Tune	10: FX Env Attack	18: Direct level
3: Fine	11: FX Env Hold	19: Aux Send 1 Level
4: Cutoff	12: FX Env Release	20: Aux Send 2 Level
5: Resonance	13: FX Env Cutoff Send	21: Aux Send 3 Level
6: Filter type	14: FX Env Pitch Send	
7: Amp Env Atk	15: FX Type	

Bitmask values (Channel 10):-

High byte (NRPN MSB)
7654321
EEEFFFF

Low byte (LSB)
7654321
RRRRPPP

E = Engine [0..7 --> eng 1..8]
F = Effect ID:-
- 0x0: engine-global params (volume, pan, etc. -- see table)
- 0x1 - 0x3: Aux Effects 1-3
- 0x4: Engine Insert Effect
- 0x5: Master Insert Effect

R = Reserved, please zero
P = Parameter number (for effects, 0x0 - 0x7 --> parameters 1..8; for engine-global parameters, see table)

Parameter table, ENGINE-GLOBAL parameters (ch10 only)

0: Master Volume
1: Master Pan
2: Master Pitch
3: Master Mute
4: Master Solo

Just-In-Time (Volatile) NRPNs for Graph automation (ch 1..8 only)

'Engine' and 'Pad' selection elements in hi-word work as above.

PARAMETER selects a graph step parameter to modify for the next note-on event on the selected engine and pad:-

0: Volume
1: Pan
2: Repeat
3: Shift
4: Cutoff
5: Resonance
6: Pitch
7: Fine tune
8: Scrub
9: Force Layer

8: MMC implementation – standalone version only

The GURU standalone application responds to MMC for transport and Commit/Undo functions during recording.

MMC commands	GURU function
0 and 9 (Stop and Pause)	Stop
2 and 3 (Play and Deferred Play)	Play
6 and 7 (Record and Record Strobe)	Record
4 (FWD)	Undo
5 (RWD)	Commit

Note: the MMC functions chosen for Undo and Commit may seem illogical – however, they were chosen because the arrangement of these buttons in the GURU user interface resembles the RWD/FWD layout on most MMC transports.

Most hosts do not route MMC to plugins, so if you want to remote-control GURU's transport controls when running it as a plugin, you should use the MIDI note assignments for these functions – see sections 2 and 3 for more details.

Of course, as long as the 'Ignore host transport and tempo' setting is not enabled, GURU is synchronized to the host transport. Therefore, whatever you use to control your host's transport also controls GURU's synchronized transport.

9: MTC sync – standalone version only

The GURU standalone application is capable of synchronizing to MIDI TimeCode (MTC).

To enable this function, enable the 'Sync to MTC' option on the GURU standalone application's menu-bar:

- On Windows, this is a menu called 'Preferences'
- On Mac, use the GURU menu-bar item

If you are using GURU as a plugin and need to synchronize to an external source, you must use the host's sync functions.