# A MIDI Primer For Computer Scientists

**Steven Robbins** 

September, 1995

**Technical Report CS-95-11** 

**Abstract.** This is the first in a series of technical reports dealing with the use of sound by programs. In this report, some of the important features of MIDI (Musical Instrument Digital Interface) are described. This is in no way a complete reference to MIDI. Instead, this technical report provides a brief introduction to MIDI devices for computer scientists who want to use these devices to produce sound from programs.

Division of Computer Science The University of Texas at San Antonio San Antonio, TX 78249

#### **1** Introduction

MIDI stands for Musical Instrument Digital Interface. The MIDI standard dates back to the 1980s and is still evolving. Manufacturers of MIDI equipment have extended the standard in different ways. Since we are not interested in making music, but rather in generating notes with a MIDI synthesizer, we will restrict our attention to the basics. More detailed information can be found in [1]. Almost nothing in this report is exactly correct. All of the concepts have been oversimplified so that they can be easily described. This simplified view is sufficient for most uses we have in mind.

A MIDI synthesizer is a device for creating sounds. The synthesizers we are interested in can generate many sounds at once. A sound is specified by giving its pitch, its volume, and its timber. The pitch determines which note is played. The timber corresponds to the instrument which is playing the note. Typically a synthesizer has have several channels; 16 is common. Each channel can be set to simulate the sound of one instrument chosen from hundreds that are preprogrammed into the device. We will concentrate on the 128 instruments and the drum kit that make up General MIDI and should be available on all MIDI synthesizers.

First the device is initialized. This includes specifying which instrument to use for some of the channels. After that commands can be sent to play notes. The simplest command is to start a note corresponding to a given channel with a given pitch and volume. The note is played and will continue until another command stops the note. If several start commands are given before the corresponding stop commands, the notes can be played at the same time.

# 2 Channels and Instruments

The MIDI literature usually refers to 16 channels numbered 1 through 16. However, when commands are sent to MIDI devices these channels are represented by 4 bits, so at the hard-ware level the channel numbers are in the range from 0 to 15. We will always refer to channels using this range. To set a particular channel to correspond to a particular instrument, you must send a three-byte message to the device. The first byte contains 0xc in the high nibble and the channel number in the low nibble. The second byte is 0, and the third byte is an instrument number. The table at the end of the report gives the correspondence between numbers and instruments the General MIDI interface. This set is supported by almost all devices and is sufficient for our needs. The instruments include a number of different pianos, organs, string instruments, wind instruments and a few sound effects such as a telephone, birds, a helicopter, and a gun shot. You would set up a channel from a C program with a function which might look like:

```
send_three_bytes(0xc0+channel,0,instrument);
```

In addition to the standard instruments, General MIDI also specifies a drum kit. This is a collection of drum and other percussion-like sounds which are grouped together as one instrument. Often a synthesizer's default setup will assign one channel, channel 9, to the drum kit and all others to the first MIDI instrument, a piano. With a drum kit each pitch corresponds to a different type of drum instrument. For example, a pitch value of 60 on most instruments corresponds to a C note. In the General MIDI drum kit, this corresponds to hitting a Bongo.

In the MIDI terminology, what we have called instruments are called *programs* and the commands to associate programs with channels are called *program change messages*.

Usually program numbers are given in the range from 1 to 128, rather than the range 0 to 127 which we have used. We have chosen to count starting at 0 because this is how the hardware interface works. The table at the end of this report gives a complete list of the General MIDI instruments available on a particular synthesizer, the Korg X5DR [2]. The following table gives a list of the instrument types and the corresponding numbers.

Numbers	Family
0 to 7	Piano
8 to 15	Chromatic Percussion
16 to 23	Organ
24 to 31	Guitar
32 to 39	Bass
40 to 47	Strings
48 to 55	Ensemble
56 to 63	Brass
64 to 71	Reeds
72 to 79	Pipes
80 to 95	Synth lead
96 to 103	Synth effects
104 to 111	Ethnic
112 to 119	Percussive
120 to 127	Sound effects

# **3** Starting and Stopping Notes

You start a note by giving the channel, the pitch, and the volume. The channel determines the instrument and the pitch determines the note. The pitch and volume are each in the range 0 to 127. A volume of 0 represents no sound. A pitch of zero corresponds to a very low C (21 notes below the lowest note on a piano) and a pitch of 127 corresponds to a very high G (7 notes above the highest note on a piano). A start note command is three bytes. The first

byte contains  $0 \times 90$  in the high nibble and the channel number in the low nibble. The second byte is the pitch and the third byte is the velocity. You can send such a command from a C program with

```
send_three_bytes(0x90+channel,pitch,volume);
```

After you start a note in continues playing until you stop it. You can stop the note by sending three bytes.

```
send_three_bytes(0x80_channel,pitch,volume);
```

Different instruments behave differently between the starting and the stopping of a note. When you strike a key on a piano, the note is loud at first and then starts to die out slowly, even while you hold down the note. Releasing the note causes the sound to die out more quickly. An organ behaves differently. As long as you hold down the note, you get a sound with almost constant volume. The sound dies out quickly when the note is released. For other instruments the note dies out so quickly after it is started that the time between the start and stop commands makes little difference in the perceived sound. I have classified each instrument as to my perception of how the sound behaves after a start command, and this is listed in the table at the end of this report.

The value that I have called volume is referred to as velocity in the MIDI terminology. It corresponds to how fast the note is hit, or how fast pressure is applied to the note. For most instruments this directly corresponds to the volume of the note. The velocity for the stop note command refers to the speed at which the note is released. The differences here are usually not noticeable to the untrained ear, and so the velocity value for the stop note command is not critical.

### 4 The Hardware Interface

The MIDI standard defines a set of DIN connectors, voltage levels and a bit rate. Communication is asynchronous serial at 31250 bits per second. The serial communication uses a 5 milliamp current loop. It takes 3 bytes to start a note. With the serial overhead of one start bit and one stop bit it takes 10 bits to send a byte so the 30 bits in the command to start a note can be sent in less than a millisecond. The MIDI interface is not compatible with the standard RS232-C serial interface on most computers and so a computer needs a MIDI port to hook it directly to a MIDI device. Most PC sound cards include such a port. Workstations typically do not have a MIDI port but serial-to-MIDI adapters are available from Keytronics [3] for about \$100. Some synthesizers are now being made with built-in serial ports allowing them to be connected directly to a standard serial port of a PC or workstation. One such device and a library for interfacing to it is described in [2].

## 5 The Table

The table given on the next page lists the correspondence between numeric values and the things they can represent. For each number in the range 0 to 127, 5 values are given. The first is the instrument that is represented by the number when the number is used in a channel initialization command. Next is my perception of how the volume of the note behaves while the note is on. This is called the envelope of the note and is in the column labeled L. I have used three classifications. F means that the note dies out fast. S means that the note dies out slowly. C means that the volume is constant as long as the note is on so that it does not die out until it is stopped. The third entry is the Drum Kit sound that the number corresponds to if it is used as the pitch for a note on channel 9. Only notes 28-87 represent valid Drum Kit sounds. Next is my perception of the envelope of that Drum Kit sound. Last is the note that the number represents when used as the pitch of a start note or stop note command.

I have picked out a few of the instruments and Drum Kit sounds as being an interesting subset to examine when determining what to use for an auralization. These are listed in boldface. The serious user will want to listen to all of the MIDI instruments and drum sounds.

## References

- [1] C. Braut, "The Musicians's Guide to MIDI," SYBEX Inc, Alameda, CA, 1992.
- [2] S. Robbins, "Controlling the Korg X5DR Synthesizer from a UNIX Program," UTSA Division of Computer Science Technical Report, CS-95-12.
- [3] Keytronics, Inc. xxx

Num	Instrument	L	Drum	L	Note	Num	Instrument	L	Drum	L	Note
0	G01 Piano	Μ			C -2	64	G65 Soprano Sax	С	Open Conga	F	E 3
1	G02 Brite Piano	М			C# -2	65	G66 Alto Sax	С	Hi Timbal	F	F 3
2	G03 Hammer Piano	М			D -2	66	G67 Tenor Sax	С	Lo Timbal	F	F# 3
3	G04 Honky Tonk	М			D# -2	67	G68 Baritone Sax	С	Agogo	F	G 3
4	G05 New Timesh	М			E -2	68	G69 Sweet Oboe	С	Agogo	F	G# 3
5	G06 Digi Piano	М			F -2	69	G70 English Horn	C	Cabasa	F	A 3
6	G07 Harpssichord	М			F# -2	70	G71 Bassoon Oboe	C	Maracas	F	A# 3
7	G08 Clavichord	Μ			G -2	71	G72 Clarinet	С	Whistle S	F	B 3
8	G09 Celesta	Μ			G# -2	72	G73 Piccolo	С	Whistle L	Μ	C 4
9	G10 Glocken	М			A -2	73	G74 Flute	С	Guiro S	F	C# 4
10	G11 Music Box	М			A# -2	74	G75 Recorder	С	Guiro L	Μ	D 4
11	G12 Vibes	Μ			B -2	75	G76 Pan Flute	С	Claves	F	D# 4
12	G13 Marimba	Μ			C -1	76	G77 Bottle	С	WoodBlock2	F	E 4
13	G14 Xylophone	M			C# -1	77	G78 Shakuhachi	C	WoodBlock3	F	F 4
14	G15 Tubular	M			D -1	78	G79 Whistle	С	Mute Cuica	F	F# 4
15	G16 Santur	Μ			D# -1	79	G80 Ocarina	C	Open Cuica	F	G 4
16	G17 Full Organ	С			E -1	80	G81 Square Wave	С	MuteTriang	F	G# 4
17	G18 Perc Organ	С			F -1	81	G82 Saw Wave	С	OpenTriang	F	A 4
18	G19 BX - 3 Organ	С			F# -1	82	G83 Syn Caliope	С	Cabasa	F	A# 4
19	G20 Church Pipe	С			G -1	83	G84 Syn Chiff	С	JingleBell	M	B 4
20	G21 Positive	С			G# -1	84	G85 Charang	M	Bell Tree	F	C 5
21	G22 Musette	С			A -1	85	G86 Air Chorus	С	Castanet	F	C# 5
22	G23 Harmonica	С			A# -1	86	G87 Rezzo 4ths	С	Side Kick	F	D 5
23	G24 Tango	С			B -1	87	G88 Bass & Lead	С	Taiko Lo	F	D# 5
24	G25 Classic Guitar	Μ			C -0	88	G89 Fantaasio	С			E 5
25	G26 Acoustic Guitar	М			C# -0	89	G90 Warm Pad	С			F 5
26	G27 Jazz Guitar	М			D -0	90	G91 Poly Pad	С			F# 5
27	G28 Clean Guitar	М			D# -0	91	G92 Hhost Pad	С			G 5
28	G29 Mute Guitar	Μ	Rock Kick	F	E -0	92	G93 Bowed Glass	С			G# 5
29	G30 Over Drive	Μ	Snare 3	F	F -0	93	G94 Metal Pad	С			A 5
30	G31 Dist Guitar	М	Open HH	F	F# -0	94	G95 Halo Pad	С			A# 5
31	G32 Rock Monics	С	Fat Kick	F	G -0	95	G96 Sweep	С			B 5
32	G33 Jass Bass	М	Timbales	F	G# 0	96	G97 Ice Rain	Μ			C 6
32 33	G33 Jass Bass G34 Deep Bass	M M	Timbales Snare 1	F F	G# 0 A 0	96 97	G97 Ice Rain G98 Sound Track	M C			C 6 C# 6
32 33 34	G33 Jass Bass G34 Deep Bass G35 Pick Bass	M M M	Timbales Snare 1 RollSnare1	F F M	G# 0 A 0 A# 0	96 97 98	G97 Ice Rain G98 Sound Track G99 Crystal	M C M			C 6 C# 6 D 6
32 33 34 35	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless	M M M M	Timbales Snare 1 RollSnare1 Real Kick	F F M F	G# 0 A 0 A# 0 B 0	96 97 98 99	G97 Ice Rain G98 Sound Track G99 Crystal G100 Atmosphere	M C M C			C 6 C# 6 D 6 D# 6
32 33 34 35 36	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1	M M M M	Timbales Snare 1 RollSnare1 Real Kick ProcesKick	F F M F F	G# 0 A 0 A# 0 B 0 C 1	96 97 98 99 100	G97 Ice Rain G98 Sound Track G99 Crystal G100 Atmosphere G101 Brightness	M C M C C			C 6 C# 6 D 6 D# 6 E 6
32 33 34 35 36 37	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2	M M M M M	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick	F F M F F	G# 0 A 0 A# 0 B 0 C 1 C# 1	96 97 98 99 100 101	G97 Ice Rain G98 Sound Track G99 Crystal G100 Atmosphere G101 Brightness G102 Goblin	M C M C C C			C 6 C# 6 D 6 D# 6 E 6 F 6
32 33 34 35 36 37 38	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1	M M M M M M	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare	F F F F F	G# 0 A 0 A# 0 B 0 C 1 C# 1 D 1	96 97 98 99 100 101 102	G97 Ice Rain G98 Sound Track G99 Crystal G100 Atmosphere G101 Brightness G102 Goblin G103 Echo Drop	M C M C C C C			C 6 C# 6 D 6 D# 6 E 6 F 6 F 6 F# 6
32 33 34 35 36 37 38 39	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2	M M M M M M C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps	F F F F F F	G# 0 A 0 A# 0 B 0 C 1 C# 1 D 1 D# 1	96 97 98 99 100 101 102 103	G97 Ice Rain G98 Sound Track G99 Crystal G100 Atmosphere G101 Brightness G102 Goblin G103 Echo Drop G104 Star Theme	M C M C C C C C			C 6 C# 6 D 6 D# 6 E 6 F 6 F 6 F # 6 G 6
32 33 34 35 36 37 38 39 40	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin	M M M M M C C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare	F F F F F F F	G# 0 A 0 A# 0 B 0 C 1 C# 1 D 1 D# 1 E 1	96 97 98 99 100 101 102 103 104	G97 Ice Rain G98 Sound Track G99 Crystal G100 Atmosphere G101 Brightness G102 Goblin G103 Echo Drop G104 Star Theme G105 Sitar	M C C C C C C M			C 6 C# 6 D 6 D# 6 E 6 F 6 F 6 F # 6 G 6 G 6
32 33 34 35 36 37 38 39 40 41	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola	M M M M M C C C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo	F F F F F F F F	G# 0 A 0 A# 0 B 0 C 1 C# 1 D 1 D# 1 E 1 F 1	96 97 98 99 100 101 102 103 104 105	G97 Ice Rain G98 Sound Track G99 Crystal G100 Atmosphere G101 Brightness G102 Goblin G103 Echo Drop G104 Star Theme G105 Sitar G106 Banjo	M C C C C C C M M			C 6 C# 6 D 6 D# 6 E 6 F 6 F 6 F 6 G 6 G 6 G# 6 A 6
32 33 34 35 36 37 38 39 40 41 42	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello	M M M M M C C C C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH	F F F F F F F F F	G# 0           A 0           A# 0           B 0           C 1           C# 1           D 1           D# 1           E 1           F 1           F# 1	96 97 98 99 100 101 102 103 104 104 105 106	G97 Ice Rain G98 Sound Track G99 Crystal G100 Atmosphere G101 Brightness G102 Goblin G103 Echo Drop G104 Star Theme G105 Sitar G106 Banjo G107 Shamisen	M C C C C C C M M M			C 6 C# 6 D 6 D# 6 E 6 F 6 F# 6 G 6 G 6 G# 6 A 6 A# 6
$     \begin{array}{r}       32 \\       33 \\       34 \\       35 \\       36 \\       37 \\       38 \\       39 \\       40 \\       41 \\       42 \\       43 \\       \end{array} $	G33 Jass BassG34 Deep BassG35 Pick BassG36 FretlessG37 Slap Bass 1G38 Slap Bass 2G39 Synth Bass 1G40 Synth Bass 2G41 ViolinG42 ViolaG43 CelloG44 Contra Bass	M M M M M C C C C C C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo	F F F F F F F F F F	G# 0           A 0           A# 0           B 0           C 1           C# 1           D 1           D# 1           E 1           F 1           F# 1           G 1	96 97 98 99 100 101 102 103 104 105 106 107	G97 Icc Rain G98 Sound Track G99 Crystal G100 Atmosphere G101 Brightness G102 Goblin G103 Echo Drop G104 Star Theme G105 Sitar G106 Banjo G107 Shamisen G108 Koto	M C M C C C C C M M M M M			C 6 C# 6 D 6 D# 6 E 6 F 6 F 6 F 6 G 6 G# 6 G# 6 A 6 A# 6 B 6
$ \begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ \end{array} $	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings	M M M M C C C C C C C C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Pedal HH	F F F F F F F F F F F	G# 0           A 0           A# 0           B 0           C 1           C# 1           D 1           D# 1           E 1           F 1           F 1           G 1           G 1           G 1	96 97 98 99 100 101 102 103 104 105 106 107 108	G97 Ice Rain G98 Sound Track G99 Crystal G100 Atmosphere G101 Brightness G102 Goblin G103 Echo Drop G104 Star Theme G105 Sitar G106 Banjo G107 Shamisen G108 Koto G109 Kalimba	M           C           M           C           C           C           C           C           M           M           M           M           M           M           M           M           M			C 6 C# 6 D 6 D # 6 F 6 F # 6 G 6 G 6 G 6 G # 6 A # 6 B 6 C 7
$\begin{array}{r} 32 \\ 33 \\ 34 \\ 35 \\ 36 \\ 37 \\ 38 \\ 39 \\ \hline 40 \\ 41 \\ 42 \\ 43 \\ 44 \\ 45 \\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G42 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato	M M M M C C C C C F	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Pedal HH Tom Lo	F           F	G# 0           A 0           A# 0           B 0           C 1           C# 1           D 1           D# 1           F 1           F 1           F# 1           G 1           G# 1           A 1	96 97 98 99 100 101 102 103 104 105 106 107 108 109	G97 Icc Rain G98 Sound Track G99 Crystal G100 Atmosphere G101 Brightness G102 Goblin G103 Echo Drop G104 Star Theme G105 Sitar G106 Banjo G107 Shamisen G108 Koto G108 Koto G109 Kalimba G110 Scotland	M           C           M           C           C           C           C           C           M           M           M           M           M           M           C			C 6 C# 6 D 6 D # 6 F 6 F # 6 G 6 G 6 G 6 G # 6 A 4 6 A 4 6 A 4 6 C 7 C 7 C # 7
$\begin{array}{r} 32 \\ 33 \\ 34 \\ 35 \\ 36 \\ 37 \\ 38 \\ 39 \\ 40 \\ 41 \\ 42 \\ 43 \\ 44 \\ 45 \\ 46 \\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp	M M M M M C C C C C C F M	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Pedal HH Tom Lo Open HH	F           F	G# 0           A 0           A 0           B 0           C 1           D 1           D 1           D 1           F 1           F 1           G 1           G 1           G 1           A 1           A 1	96 97 98 99 100 101 102 103 104 105 106 107 108 109 110	G97 Icc Rain G98 Sound Track G99 Crystal G100 Atmosphere G101 Brightness G102 Goblin G103 Echo Drop G104 Star Theme G105 Sitar G106 Banjo G107 Shamisen G108 Koto G108 Koto G109 Kalimba G110 Scotland G111 Fidlle	M           C           M           C           C           C           C           M           M           M           M           M           M           C           C           C           C           C           C           C           C			C 6 C# 6 D 6 D# 6 F 6 F 6 G 6 G 6 G 6 G 6 G 6 A 6 A 4 6 A 4 6 B 6 C 7 C# 7 D 7
$\begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp G48 Timpani	M M M M M C C C C C C F F M C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Pedal HH Tom Lo Open HH Tom Hi	F           F	G# 0           A 0           A 0           B 0           C 1           C# 1           D 1           D# 1           E 1           F 1           F# 1           G 1           G# 1           A 1           A# 1           B 1	96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111	G97 Ice Rain G98 Sound Track G99 Crystal G100 Atmosphere G101 Brightness G102 Goblin G103 Echo Drop G104 Star Theme G105 Sitar G106 Banjo G107 Shamisen G108 Koto G109 Kalimba G110 Scotland G111 Fiddle G112 Shanai	M           C           M           C           C           C           C           M           M           M           M           M           C           C           C           C           C           C           C           C           C           C           C			C 6 C# 6 D 6 D # 6 F 6 F 6 G 6 G 6 G 6 G 6 G 6 A 6 A 4 6 C 7 C# 7 D 7 D # 7
$\begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ 48\\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp G48 Timpani G49 Marcato	M M M M M C C C C C F M C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Pedal HH Tom Lo Open HH Tom Hi	F           F	G# 0           A 0           A 0           A 0           B 0           C 1           C 1           D 1           D 1           D# 1           E 1           F 1           F# 1           G 1           G# 1           A 1           A# 1           B 1           C 2	96 97 98 99 100 101 102 103 104 105 106 107 106 107 109 110 111 112	G97 Ice RainG98 Sound TrackG99 CrystalG100 AtmosphereG101 BrightnessG102 GoblinG103 Echo DropG104 Star ThemeG105 SitarG106 BanjoG107 ShamisenG108 KotoG108 KotoG109 KalimbaG111 FiddleG112 ShanaiG113 Metal Bell	M           C           M           C           C           C           M           M           M           M           M           C           C           C           C           C           C           C           C           C           M			$ \begin{array}{c} C \ 6 \\ C \ f \ 6 \\ D \ 6 \\ F \ 6 \\ F \ 6 \\ G \ 6 \\ C \ 7 \\ C \ 7 \\ C \ 7 \\ D \ 7 \\ D \ 7 \\ D \ 7 \\ E \ 7 \\ \end{array} $
$\begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ 48\\ 49\\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp G48 Timpani G49 Marcato G50 Slow String	M M M M M C C C C C F M C C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Pedal HH Tom Lo Open HH Tom Hi Tom Hi Crash Cym	F           F	G# 0           A 0           A 0           A 0           A 0           B 0           C 1           C 1           C 1           D 1           D 1           D# 1           E 1           F 1           F 1           G 1           G# 1           A 1           A# 1           B 1           C 2           C# 2	96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113	G97 Ice RainG98 Sound TrackG99 CrystalG100 AtmosphereG101 BrightnessG102 GoblinG103 Echo DropG104 Star ThemeG105 SitarG106 BanjoG107 ShamisenG108 KotoG109 KalimbaG111 FiddleG112 ShanaiG113 Metal BellG114 Agogo	M           C           C           C           C           C           M			$ \begin{array}{c} C \ 6 \\ C \ f \ 6 \\ D \ 6 \\ F \ 6 \\ F \ 6 \\ G \ 6 \\ C \ 7 \\ C \ 7 \\ C \ 7 \\ D \ 7 \\ D \ 7 \\ D \ 7 \\ F \ 7 \\ \end{array} $
$\begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ 48\\ 49\\ 50\\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp G48 Timpani G49 Marcato G50 Slow String G51 Annalog Pad	M M M M M C C C C C C C C C C C C C C C	Timbales Snare 1 Real Kick ProcesKick Side Kick Kock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Pedal HH Tom Lo Open HH Tom Hi Tom Hi Crash Cym Tom Hi	F           F	G# 0           A 0           A# 0           B 0           C 1           C# 1           D 1           D# 1           E 1           F 1           F41           G 1           G# 1           A 1           A# 1           B 1           C 2           C# 2           D 2	96           97           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114	G97 Ice Rain G98 Sound Track G99 Crystal G100 Atmosphere G101 Brightness G102 Goblin G103 Echo Drop G104 Star Theme G105 Sitar G106 Banjo G107 Shamisen G108 Koto G109 Kalimba G110 Scotland G111 Fiddle G112 Shanai G113 Metal Bell G114 Agogo G115 Steel Drums	M           C           M           C           C           C           C           M			$ \begin{array}{c} C \ 6 \\ C \ f \ 6 \\ D \ f \ 6 \\ F \ 6 \\ F \ 6 \\ F \ 6 \\ G \ 6 \\ C \ 7 \\ C \ 7 \\ D \ 7 \\ D \ 7 \\ D \ 7 \\ F \ 7 \\ \end{array} $
$\begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ 48\\ 49\\ 50\\ 51\\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp G48 Timpani G49 Marcato G50 Slow String G51 Annalog Pad G52 String Pad	M M M M C C C C C C C F F M C C C C C C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Pedal HH Tom Lo Pedal HH Tom Hi Tom Hi Tom Hi Crash Cym Tom Hi Ride Edge	F           F	$\begin{array}{c} G\# 0 \\ A 0 \\ A 0 \\ A\# 0 \\ B 0 \\ C 1 \\ C\# 1 \\ D 1 \\ D\# 1 \\ \hline \\ F 1 \\ G 1 \\ G\# 1 \\ A 1 \\ A 1 \\ A 1 \\ B 1 \\ C 2 \\ C\# 2 \\ D 2 \\ D\# 2 \\ \hline \end{array}$	96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 111 112 113 114 115	G97 Ice RainG98 Sound TrackG99 CrystalG100 AtmosphereG101 BrightnessG102 GoblinG103 Echo DropG104 Star ThemeG105 SitarG106 BanjoG107 ShamisenG108 KotoG109 KalimbaG110 ScotlandG111 FiddleG112 ShanaiG113 Metal BellG115 Steel DrumsG116 Wood Block	M C C C C C C M M M M M C C C C M M M M			$ \begin{array}{c} C \ 6 \\ C \ f \ 6 \\ D \ f \ 6 \\ E \ 6 \\ F \ 6 \\ G \ 6 \\ G \ 6 \\ G \ 6 \\ G \ 6 \\ A \ 6 \\ B \ 6 \\ C \ 7 \\ C \ 7 \\ C \ 7 \\ D \ 7 \\ D \ 7 \\ F \ 7 \\ F \ 7 \\ F \ 7 \\ G \ 7 \\ \end{array} $
$\begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ 46\\ 47\\ 48\\ 49\\ 50\\ 51\\ 52\\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp G48 Timpani G49 Marcato G50 Slow String G51 Annalog Pad G52 String Pad G53 Choir	M M M M M M C C C C C C C F F M C C C C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Pedal HH Tom Lo Open HH Tom Hi Tom Hi Crash Cym Tom Hi Ride Edge China Cym	F           M           F           M	$\begin{array}{c} G\#0\\ A0\\ A0\\ A0\\ B0\\ C1\\ C1\\ C1\\ D1\\ D1\\ D1\\ D1\\ I\\ I\\$	96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116	G97 Ice RainG98 Sound TrackG99 CrystalG100 AtmosphereG101 BrightnessG102 GoblinG103 Echo DropG104 Star ThemeG105 SitarG106 BanjoG107 ShamisenG108 KotoG109 KalimbaG110 ScotlandG111 FiddleG112 ShanaiG113 Metal BellG115 Steel DrumsG116 Wood BlockG117 Taiko	M C C C C C C C C C C C C M M M M M M M			$ \begin{array}{c} C \ 6 \\ C \ \# \ 6 \\ D \ \# \ 6 \\ E \ 6 \\ F \ 6 \\ G \ 6 \\ G \ 6 \\ G \ 6 \\ G \ 6 \\ A \ 6 \\ B \ 6 \\ C \ 7 \\ C \ \# \ 7 \\ D \ 7 \\ F \ 7 \\ F \ 7 \\ F \ 7 \\ G $
$\begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ 48\\ 49\\ 50\\ 51\\ 52\\ 53\\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G35 Pick Bass G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp G48 Timpani G49 Marcato G50 Slow String G51 Annalog Pad G52 String Pad G53 Choir G54 Doo Voice	M M M M M C C C C C C C C C C C C C C C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Pedal HH Tom Hi Tom Hi Crash Cym Ride Edge China Cym Ride Cup	F           M           F           M           F	$\begin{array}{c} G\#0\\ A0\\ A0\\ B0\\ C1\\ D1\\ D1\\ D1\\ D1\\ D1\\ D1\\ D1\\ C1\\ 1\\ D1\\ C1\\ C1\\ C1\\ C1\\ C1\\ C1\\ C1\\ C$	96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117	G97 Ice RainG98 Sound TrackG99 CrystalG100 AtmosphereG101 BrightnessG102 GoblinG103 Echo DropG104 Star ThemeG105 SitarG106 BanjoG107 ShamisenG108 KotoG108 KotoG109 KalimbaG110 ScotlandG111 FiddleG112 ShanaiG113 Metal BellG115 Steel DrumsG115 Steel DrumsG116 Wood BlockG117 TaikoG118 Tom	M C C C C C C C C C C C C C C C C C M M M M M M M M M M M M M			$ \begin{array}{c} C \ 6 \\ C \ # \ 6 \\ D \ 6 \\ D \ 6 \\ F \ 6 \\ F \ 6 \\ G \ 6 \\ C \ 7 \\ C \ 7 \\ C \ 7 \\ C \ 7 \\ D \ 7 \\ F \ 7 \\ F \ 7 \\ F \ 7 \\ G \ 7 \\ A \ 7 \\ \end{array} $
$\begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 44\\ 45\\ 46\\ 47\\ 48\\ 49\\ 50\\ 51\\ 52\\ 53\\ 54\\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G35 Pick Bass G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp G48 Timpani G49 Marcato G50 Slow String G51 Annalog Pad G52 String Pad G53 Choir G54 Doo Voice G55 Voices	M M M M M M M C C C C C C C C C C C C C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Pedal HH Tom Hi Crash Cym Tom Hi Ride Edge China Cym Ride Cup Tambourine	F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           M           F           F           F	$\begin{array}{c} G\#0\\ A0\\ A0\\ B0\\ C1\\ C\#1\\ D1\\ D1\\ D1\\ D1\\ F1\\ F1\\ F1\\ G1\\ G1\\ G1\\ G1\\ G1\\ G1\\ C2\\ C2\\ C2\\ C2\\ D2\\ D2\\ D2\\ D2\\ D2\\ C2\\ F2\\ F2\\ F2\\ F2\\ F2\\ F2\\ F2\\ F$	96           97           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118	G97 Ice RainG98 Sound TrackG98 CrystalG100 AtmosphereG101 BrightnessG102 GoblinG103 Echo DropG104 Star ThemeG105 SitarG106 BanjoG107 ShamisenG108 KotoG109 KalimbaG110 ScotlandG111 FiddleG112 ShanaiG113 Metal BellG115 Steel DrumsG116 Wood BlockG117 TaikoG118 TomG119 Synth Tom	M C C C C C C C C C C C C C C C C C M M M M M M M M M M M M M			$ \begin{array}{c} C \ 6 \\ C \ # \ 6 \\ D \ 6 \\ D \ 6 \\ F \ 6 \\ F \ 6 \\ G \ 6 \\ C \ 7 \\ C \ 7 \\ D \ 7 \\ F \ 7 \\ G \ 7 \\ A \ 7 \\ A \ 7 \\ A \ 7 \\ A \ 7 \\ \end{array} $
$\begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ 48\\ 49\\ 50\\ 51\\ 52\\ 53\\ 54\\ 55\\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 2 G40 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp G48 Timpani G49 Marcato G50 Slow String G51 Annalog Pad G52 String Pad G52 String Pad G53 Choir G54 Doo Voice G55 Voices G56 Orch Hot	M M M M M M C C C C C C C C C C C C C C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Open HH Tom Hi Crash Cym Tom Hi Ride Edge China Cym Ride Cup Tambourine Splash Cym	F           M           F           M           F           M	G# 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 1           A 1           A 1           A 1           A 1           B 1           C 2           C# 2           D 2           D 2           D 2           F 2           F 2           F 2           F 2           F 2           F 2           G 2	96           97           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118           119	G97 Ice RainG98 Sound TrackG98 CrystalG100 AtmosphereG101 BrightnessG102 GoblinG103 Echo DropG104 Star ThemeG105 SitarG106 BanjoG107 ShamisenG108 KotoG109 KalimbaG110 ScotlandG111 FiddleG112 ShanaiG113 Metal BellG114 AgogoG115 Steel DrumsG116 Wood BlockG117 TaikoG118 TomG119 Synth TomG120 Rev Cymbol	M C C C C C C C C C C C C C C C C C C C			$ \begin{array}{c} C \ 6 \\ C \ f \ 6 \\ D \ 6 \\ D \ 6 \\ F \ 6 \\ F \ 6 \\ G \ 6 \\ C \ 7 \\ C \ 7 \\ D \ 7 \\ D \ 7 \\ F \ 7 \\ F \ 7 \\ F \ 7 \\ G \ 7 \ 7 \\ G \ 7 \ 7 \ 7 \ 7 \ 7 \ 7 \ 7 \ 7 \ 7 \$
$\begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ 48\\ 49\\ 50\\ 51\\ 52\\ 53\\ 54\\ 55\\ 56\\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp G48 Timpani G49 Marcato G50 Slow String G51 Annalog Pad G52 String Pad G52 String Pad G55 Voices G55 Voices G56 Orch Hot G57 Trumpet	M M M M M C C C C C C C F F C C C C C C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Open HH Tom Lo Open HH Tom Hi Crash Cym Ride Edge China Cym Ride Cup Tambourine Splash Cym Cowbell	F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           M           F           F           M           F           M           F           M           F           M	G# 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 1           A 1           A 1           A 1           A 1           A 1           B 1           C 2           C# 2           D 2           D# 2           F 2           F 2           F 2           F 2           F 2           G 2           G 2           G 2           G 2	96           97           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118           119           120	G97 Ice RainG98 Sound TrackG99 CrystalG100 AtmosphereG101 BrightnessG102 GoblinG103 Echo DropG104 Star ThemeG105 SitarG106 BanjoG107 ShamisenG108 KotoG109 KalimbaG110 ScotlandG111 FiddleG112 ShanaiG113 Metal BellG114 AgogoG115 Steel DrumsG116 Wood BlockG119 Synth TomG120 Rev CymbolG121 Fret Noise	M C C C C C C C C C C C C C C C C C C C			$ \begin{array}{c} C\ 6 \\ C\ 4 \\ C\ 6 \\ D\ 6 \\ D\ 6 \\ F\ 6 \\ F\ 6 \\ G\ 6 \\ G\ 6 \\ G\ 6 \\ A\ 6 \\ A\ 6 \\ A\ 6 \\ A\ 6 \\ C\ 7 \\ C\ 7 \\ D\ 7 \\ C\ 7 \\ T\ 7 \\ C\ 7 \\ F\ 7 \\ G\ 7 \\ G\ 7 \\ A\ 7 \\ A\ 7 \\ A\ 7 \\ B\ 7 \\ C\ 8 \\ \end{array} $
$\begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ 48\\ 49\\ 50\\ 51\\ 52\\ 53\\ 54\\ 55\\ 56\\ 57\\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp G48 Timpani G49 Marcato G50 Slow String G51 Annalog Pad G52 String Pad G52 String Pad G55 Voices G56 Orch Hot G57 Trumpet G58 Trombone	M M M M M C C C C C C C C C C C C C C C	Timbales Snare 1 Real Kick ProcesKick Side Kick Kock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Pedal HH Tom Lo Open HH Tom Hi Crash Cym Ride Edge China Cym Ride Cup Tambourine Splash Cym Cowbell Crash Cym	F           M           F           F           M           F           F           M           F           F	G# 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 1           A 1           A 1           A 1           A 1           B 1           C 2           C# 2           D 4           F 2           F# 2           F# 2           G# 2           A 2	96           97           98           99           100           101           102           103           104           105           106           107           108           109           110           111           112           113           114           115           116           117           118           119           120           121	G97 Ice RainG98 Sound TrackG99 CrystalG100 AtmosphereG101 BrightnessG102 GoblinG103 Echo DropG104 Star ThemeG105 SitarG106 BanjoG107 ShamisenG108 KotoG109 KalimbaG110 ScotlandG111 FiddleG112 ShanaiG113 Metal BellG114 AgogoG115 Steel DrumsG116 Wood BlockG117 TaikoG118 TomG120 Rev CymbolG121 Fret NoiseG122 Noise Cliff	M C C C C C C C C C C C C M M M M M M M			$ \begin{array}{c} C\ 6 \\ C\ 4 \\ C\ 6 \\ D\ 6 \\ D\ 6 \\ F\ 6 \\ F\ 6 \\ F\ 6 \\ G\ 6 \\ G\ 6 \\ A\ 6 \\ B\ 6 \\ C\ 7 \\ C\ 7 \\ D\ 7 \\ D\ 7 \\ D\ 7 \\ F\ 7 \\ C\ 8 \\ \end{array}$
$\begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 44\\ 45\\ 44\\ 45\\ 46\\ 47\\ 48\\ 49\\ 50\\ 51\\ 52\\ 53\\ 54\\ 55\\ 56\\ 57\\ 58\\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp G48 Timpani G49 Marcato G50 Slow String G51 Annalog Pad G52 String Pad G53 Choir G54 Doo Voice G55 Voices G56 Orch Hot G57 Trumpet G58 Trombone G59 Tuba	M M M M M C C C C C C C C C C C C C C C	Timbales Snare 1 Real Kick ProcesKick Side Kick Kock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Pedal HH Tom Lo Open HH Tom Hi Crash Cym Ride Edge China Cym Ride Cup Tambourine Splash Cym Cowbell Crash Cym Vibraslap	F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           M           F           F           M           F           F           M           F           M	G# 0           A 0           A 40           B 0           C 1           C# 0           D 1           D 1           D# 1           E 1           F 1           F41           G 1           G# 1           A 1           A# 1           B 1           C 2           C# 2           D 4           F 2           F 4           G 2           G# 2           A 2           A # 2	96           97         98           99         100           101         102           103         104           105         106           107         108           109         110           111         112           113         114           115         116           117         118           119         120           121         122	G97 Ice RainG98 Sound TrackG99 CrystalG100 AtmosphereG101 BrightnessG102 GoblinG103 Echo DropG104 Star ThemeG105 SitarG106 BanjoG107 ShamisenG108 KotoG109 KalimbaG110 ScotlandG111 FiddleG113 Metal BellG114 AgogoG115 Steel DrumsG118 TomG119 Synth TomG120 Rev CymbolG121 Fret NoiseG123 Seashore	M C C C C C C C C M M M M M M M M M M M			$ \begin{array}{c} C\ 6 \\ C\ 4 \\ C\ 6 \\ D\ 6 \\ D\ 6 \\ F\ 6 \\ F\ 6 \\ F\ 6 \\ G\ 6 \\ \hline 7 \\ C\ 7 \\ C\ 7 \\ C\ 7 \\ D\ 7 \\ D\ 7 \\ D\ 7 \\ C\ 7 \\ F\ 7 \\ C\ 8 \\ C\ 8 \\ C\ 8 \\ C\ 8 \\ D\ 8 \\ \end{array} $
$\begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ 48\\ 49\\ 50\\ 51\\ 52\\ 53\\ 54\\ 55\\ 55\\ 56\\ 57\\ 58\\ 59\\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp G48 Timpani G49 Marcato G50 Slow String G51 Annalog Pad G52 String Pad G52 String Pad G53 Choir G54 Doo Voice G55 Voices G56 Orch Hot G58 Trombone G59 Tuba G60 Muted Trumpet	M M M M M M C C C C C C C C C C C C C C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Open HH Tom Hi Tom Hi Tom Hi Ride Edge China Cym Ride Cup Tambourine Splash Cym Cowbell Crash Cym Ride Cym Ride Cym Ride Cym Ride Cym Combell Crash Cym Ride Cym Ride Cym Ride Cym Ride Cym Combell Crash Cym Ride Cy	F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           M           F           M           F           M           F           M           M           M           M	G# 0           A 0           A 0           B 0           C 1           D 1           D 1           D 1           D 1           B 0           C 1           G 1           G 1           G 1           G 1           G 1           G 1           G 1           G 1           G 1           G 1           G 1           G 2           D 2           D 2           D 2           D 2           D 2           D 2           D 2           F 2           F 2           F 2           G 2           G 2           G 2           A 2           A 2           A 2           B 2	96           97         98           99         100           101         102           103         104           105         106           107         108           109         110           111         112           113         114           115         116           117         118           119         120           121         122           123         124	G97 Ice RainG98 Sound TrackG99 CrystalG100 AtmosphereG101 BrightnessG102 GoblinG103 Echo DropG104 Star ThemeG105 SitarG106 BanjoG107 ShamisenG108 KotoG109 KalimbaG110 ScotlandG111 FiddleG112 ShanaiG113 Metal BellG114 AgogoG115 Steel DrumsG118 TomG119 Synth TomG120 Rev CymbolG121 Fret NoiseG122 Noise CliffG123 SeashoreG124 Birds	M C C C C C C C C C C M M M M M M M M M			$ \begin{array}{c} C\ 6 \\ C\ f\ 6 \\ D\ f\ 6 \\ \hline \\ P\ 6 \\ F\ 6 \\ F\ 6 \\ \hline \\ F\ 6 \\ \hline \\ G\ 6 \\ \hline \\ C\ 7 \\ \hline \\ F\ 7 \\ \hline \\ C\ 8 \\ \hline \\ C\ 8 \\ \hline \\ D\ 8 \\ \hline \\ \end{array} $
$\begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ 48\\ 49\\ 50\\ 51\\ 52\\ 53\\ 54\\ 55\\ 55\\ 56\\ 57\\ 58\\ 59\\ 60\\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp G48 Timpani G49 Marcato G50 Slow String G51 Annalog Pad G52 String Pad G52 String Pad G53 Choir G54 Doo Voice G55 Voices G56 Orch Hot G57 Trumpet G58 Trombone G59 Tuba G60 Muted Trumpet G61 French Horn	M M M M M C C C C C C C C C C C C C C C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Open HH Tom Hi Crash Cym Ride Edge China Cym Ride Cup Tambourine Splash Cym Ride Cym Ri	F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           M           F           F           M           F           M           F           M           F           M           F	G# 0         A 0         A 0         A 0         B 0         C 1         D 1         D 1         D 1         D 1         D 1         B 0         C 1         F 1         F 1         F 1         G 1         G 1         G 1         G 1         A 1         A 1         A 1         A 1         B 1         C 2         C 2         C 2         D 2         D 2         D 2         D 2         D 2         D 2         D 2         D 2         D 2         D 2         D 2         D 2         F 2         F 2         F 2         G 2         G# 2         A 2         B 2         C 3	96           97         98           99         100           101         102           103         104           105         106           107         108           109         110           111         112           113         114           115         116           117         118           119         120           121         122           122         123           124         124	G97 Ice RainG98 Sound TrackG98 CrystalG100 AtmosphereG101 BrightnessG102 GoblinG103 Echo DropG104 Star ThemeG105 SitarG106 BanjoG107 ShamisenG108 KotoG108 KotoG109 KalimbaG110 ScotlandG111 FiddleG112 ShanaiG113 Metal BellG114 AgogoG115 Steel DrumsG118 TomG119 Synth TomG120 Rev CymbolG121 Fret NoiseG122 Noise CliffG122 Noise CliffG123 SeashoreG124 BirdsG125 Telephone	M C C C C C C C C C C C C C C C C C C C			$ \begin{array}{c} C \ 6 \\ C \ # \ 6 \\ D \ 6 \\ D \ 6 \\ F \ 6 \\ F \ 6 \\ G \ 6 \\ C \ 7 \\ C \ 7 \\ C \ 7 \\ D \ 7 \\ F \ 7 \\ G \ 7 \ 7 \\ G \ 7 \ 7 \ 7 \\ G \ 7 \ 7 \ 7 $
$\begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ 48\\ 49\\ 50\\ 51\\ 52\\ 53\\ 54\\ 55\\ 55\\ 56\\ 57\\ 58\\ 59\\ 60\\ 61\\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp G48 Timpani G49 Marcato G50 Slow String G51 Annalog Pad G52 String Pad G52 String Pad G53 Choir G54 Doo Voice G55 Voices G56 Orch Hot G57 Trumpet G58 Trombone G59 Tuba G60 Muted Trumpet G61 French Horn G62 Brass	M         M           M         M           M         M           C         C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Pedal HH Tom Hi Crash Cym Ride Edge China Cym Ride Cup Tambourine Splash Cym Vibraslap Ride Cym 1 Hi Bongo Lo Bongo	F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           M           F           F           M           F           F           M           F           F           M           F           F           F           F           F	G# 0         A 0         A 0         A 0         B 0         C 1         C# 0         D 1         D 1         D 1         D 1         D 1         F 1         F 1         G 1         G 1         G 1         G 1         G 1         G 2         C# 2         D 2         D 2         D 2         D 2         D 2         F 2         F 2         F 2         F 2         G 2         G 2         G 4 2         A 2         A 2         A 2         C 3         C 4 3	96           97         98           99         100           101         102           103         104           105         106           107         108           109         110           111         112           113         114           115         116           117         118           119         120           121         123           124         125	G97 Ice RainG98 Sound TrackG99 CrystalG100 AtmosphereG101 BrightnessG102 GoblinG103 Echo DropG104 Star ThemeG105 SitarG106 BanjoG107 ShamisenG108 KotoG109 KalimbaG109 KalimbaG111 FiddleG112 ShanaiG113 Metal BellG114 AgogoG115 Steel DrumsG118 TomG119 Synth TomG120 Rev CymbolG121 Fret NoiseG122 Noise CliffG123 SeashoreG126 Helicopter	M C C C C C C C C C C C C C C C C C C C			$ \begin{array}{c} C\ 6 \\ C\ f\ 6 \\ D\ f\ 6 \\ F\ 6 \\ F\ 6 \\ F\ 6 \\ G\ 6 \\ \hline \\ C\ 7 \\ C\ 7 \\ \hline \\ F\ 7 \\ \hline \\ C\ 8 \\ \hline \\ C\ 8 \\ \hline \\ C\ 8 \\ \hline \\ D\ 8 \\ \hline \\ B\ 8 \\ \hline \\ F\ 8 \\ \hline \\ F\ 8 \\ \hline $
$\begin{array}{r} 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ 48\\ 49\\ 50\\ 51\\ 52\\ 53\\ 54\\ 55\\ 56\\ 57\\ 58\\ 59\\ 60\\ 61\\ 62\\ \end{array}$	G33 Jass Bass G34 Deep Bass G35 Pick Bass G35 Pick Bass G36 Fretless G37 Slap Bass 1 G38 Slap Bass 2 G39 Synth Bass 1 G40 Synth Bass 2 G41 Violin G42 Viola G43 Cello G44 Contra Bass G45 Tremolo Strings G46 Pizzicato G47 Harp G48 Timpani G49 Marcato G50 Slow String G51 Annalog Pad G52 String Pad G53 Choir G54 Doo Voice G55 Voices G56 Orch Hot G58 Trombone G59 Tuba G60 Muted Trumpet G61 French Horn G62 Brass G63 Syn Brass 1	M M M M M M M M C C C C C C C C C C C C	Timbales Snare 1 RollSnare1 Real Kick ProcesKick Side Kick Rock Snare Hand Claps LightSnare Tom Lo Tite HH Tom Lo Open HH Tom Lo Open HH Tom Hi Crash Cym Ride Edge China Cym Ride Cup Tambourine Splash Cym Cowbell Crash Cym Ride Cym Ride Cym Ride Cym Chinaslap Ride Cym Lo Bongo Mute Conga	F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           F           M           F           F           M           F	G# 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           A 0           B 0           C 1           C# 1           D 1           D# 1           E 1           F# 1           G 1           G# 1           A 1           A# 1           B 1           C 2           C# 2           D 2           D 2           D 2           F 2           F 2           F 2           F 2           G# 2           A 2           A# 2           B 2           C 3           C# 3           D 3	96           97         98           99         100           101         102           103         104           105         106           107         108           109         110           111         112           113         114           115         116           117         118           119         120           121         123           124         125           126         126	G97 Ice RainG98 Sound TrackG98 CrystalG100 AtmosphereG101 BrightnessG102 GoblinG103 Echo DropG104 Star ThemeG105 SitarG106 BanjoG107 ShamisenG108 KotoG109 KalimbaG110 ScotlandG111 FiddleG112 ShanaiG113 Metal BellG114 AgogoG115 Steel DrumsG116 Wood BlockG117 TaikoG118 TomG120 Rev CymbolG121 Fret NoiseG122 Noise CliffG123 SeashoreG126 HelicopterG127 Stadium	M C C C C C C C C C C C C C C C C C C C			$ \begin{array}{c} C\ 6 \\ C\ f\ 6 \\ D\ f\ 6 \\ P\ 6 \\ F\ 6 \\ F\ 6 \\ G\ 6 \\ \hline f\ 6 \\ G\ 6 \\ \hline f\ 6 \\ A\ 6 \\ A\ 6 \\ \hline f\ 6 \\ C\ 7 \\ C\ 7 \\ C\ 7 \\ C\ 7 \\ \hline f\ 7 \\ G\ 7 \\ F\ 7 \\ G\ 7 \\ C\ 8 \\ \hline f\ 8 \\ \hline f\ 8 \\ \hline f\ 8 \\ F\ 8 \\ F\ 8 \\ \hline F\ 8 $