Pure Data 0.4 quick reference guide

adc~ analog to digital converter (sound card input)
append add item to a list
bag collection of numbers
bang triggers an action by sending a BANG message
bang~ triggers an action by sending a BANG after each DSP cycle
bendin MIDI pitch bend in
bendout MIDI pitch bend out
biquad~ 2-pole-2-zero-filter
block~ block size and on/off control for DSP
bng GUI bang
bp~ bandpass filter
catch~ summing signal bus and non-local connection
change eliminate redundancy in a number stream
clip restrict a message to lie between two limits
clip~ restrict a signal to lie between two limits
cos~ cosine waveshaper
cpole~ complex one-pole (recursive) filter, raw
cputime measure CPU usage
ctlin MIDI control in
ctlout MIDI control out
czero~ complex one-zero (non-recursive) "reverse" filter, raw
czero_rev~ complex one-zero (non-recursive) "reverse" filter, raw
dac~ digital to analog converter (sound card output)
dbtopow decibel to power
dbtorms, dbtorms~ deciBel to RMS
declare set search path and/or load libraries
delay callback after time delay
delread~ read a signal from a delay line
delwrite~ writes a signal in a delay line
drawcurve draw shapes for data structures
drawnumber draw numeric fields from data structures
drawpolygon draw shapes for data structures
element get pointer to an element of an array
env~ envelope follower
f abbreviation of float
fft~ forward complex FFT
filledcurve draw shapes for data structures and fill them
filledpolygon draw shapes for data structures and fill them
float store and recall a floating point number
framp~ estimate frequency and amplitude of FFT components
ftom, ftom~ frequency to MIDI
get get values from a scalar
getsize get number of elements of an array
hip~ one-pole high pass filter
hslider GUI value selector
ifft~ inverse complex FFT
inlet add an inlet to a pd
int store and recall an integer
key get raw key value (on key pressed)
keyup get raw key value (on key released)
keyname get key value and state
line ramp generator (target value, speed)
line~ audio ramp generator
list building and using variable-length messages
loadbang triggers an action by sending a BANG message
lop~ one-pole low pass filter
makefilename create a filename
makenote send note-on messages and schedule note-off for later
metro metronome object
midiin MIDI raw message in
midiout MIDI raw message out
moses part a stream of numbers
mtof, mtof~ MIDI to frequency
my_canvas GUI 2D controller
namecanvas attach this canvas to a name (obsolete)
netreceive listen for incoming messages from network
netsend send Pd messages over a network
noise~ uniformly distributed white noise
notein MIDI note in
noteout MIDI note out
openpanel query you for a filename
osc~ cosine wave oscillator
outlet add an outlet to a pd
pack combine several atoms into one message
pd create subpatch
pgmin MIDI program change in
pgmout MIDI program change out
phasor~ sawtooth generator
pipe message "delay line"
plot draw array elements of scalars
pointer remember the location of a scalar in a list
poly MIDI style polyphonic voice allocator
polytouchin MIDI poly aftertouch in
polytouchout MIDI poly aftertouch out
powtodb power to deciBel
print print messages to terminal window

print~ print out raw values of a signal
q8_rsqrt~ 8 bit reciprocal square root
q8_sqrt~ 8 bit squar root
qlist text-based sequencer
r abbreviation of receive
random pseudorandom integers
readsf~ read a soundfile
realtime ask OS for elapsed real time
receive receive messages without patch chords
receive~ signal receive; one-to-many non-local signal connections
rfft~ forward real FFT
rifft~ inverse real FFT
rmstodb, rmstodb~ RMS to deciBel
route route messages according to their first element
rpole~ real one-pole (non-recursive) filter
rsqrt~ signal reciprocal square root
rzero~ real one-zero (non-recursive) filter, raw
rzero_rev~ real reversed (non-recursive) filter, raw
s abbreviation of send
samplerate~ get the sample rate
samphold~ sample and hold unit
savepanel query you for the name of a file to create
select compare numbers or symbols
send send messages without patch chords
send~ signal send; one-to-many non-local signal connections
serial serial device control for NT only
set set values in a scalar
setsize resize an array
sig~ convert numbers to audio signal
snapshot~ convert a signal to a number on demand
soundfiler read and write soundfiles to arrays
spigot pass or block messages
sqrt~ signal square root
stripnote send note-on messages and schedule not-off for later
struct declare the fields in a data structure
sublist get a list from a field of a scalar (untested!)
swap swap two numbers, respecting right-to-left order
switch~ blocks size and on/off control for DSP and switches it off
symbol store and recall a symbol
sysexin MIDI system exclusive in
t abbreviation of trigger
table array of numbers
tabosc4~ 4-point interpolating oscillator
tabplay~ play a table as a sample (non-transposing)
tabread read numbers from a table
tabread~ read numbers from a table
tabread4~ 4-point-interpolating table lookup
tabreceive~ read a block of a signal from an array continuously
tabsend~ writes one block of a signal continuously to an array
tabwrite writes numbers to a table
tabwrite~ object to write a signal in an array
template use struct now
textfile reads and writes text files
touchin MIDI channel aftertouch in
touchout MIDI channel aftertouch out
threshold~ trigger from audio signal
throw~ summing signal bus and non-local connection
timer measure logical time
toggle GUI toggle
trigger sequence messages in right-to-left order.
message types can be abbreviated:
a(nything), **b**(ang), **f**(loat), **l**(ist), **p**(ointer), **s**(ymbol)
unpack split a message to atoms
until loop
v abbreviation of value
value nonlocal shared value (named variable)
vcf~ voltage-controlled bandpass filter
vd~ reads a signal from a delay line at a variable delay time (4-point-interpolation)
vline~ high-precision audio ramp generator
vslider GUI value selector
vsnapshot~ deluxe snapshot
vu GUI VU meter display
wrap~ remainder modulo 1
writesf~ write audio signals to a sound file

operator	+, -, *, /, pow, max, min
otherbinpos	(logical): &, |, &&, ||, <<, >>
	(relational): >, >=, ==, !=, <=, <
sigbinops	operators on audio signals.
	+~, -~, *~, /~, max~, min~

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