

# **Music for Flute & ISPW**

*(IRCAM Signal Processing Workstation)*

**by Cort Lippe**

**1994**

Commissioned by François Bru and the French Section of the International Society of Music Educators

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## Program Notes

**Music for Flute and ISPW** (*IRCAM Signal Processing Workstation*) (1994) was commissioned by the French flutist François Bru and the French Section of the International Society of Music Educators, realized at IRCAM in Paris, and premiered in Tampa, Florida at the 1994 International Symposium of Music Educators. The electronic part was created using the IRCAM Signal Processing Workstation, (a real-time digital signal processor), and the program *Max* which was developed by Miller Puckette, whose technical support, along with Zack Settel's musical advice, helped make this piece possible.

Technically, the flute pitches are tracked by the computer as the performer plays. This pitch information is sent to a “score follower”, which allows the computer to follow the player’s performance by comparing it to a copy of the score which is stored in the computer. At specific points designated in the score, electronic events are triggered by the score follower. The computer also tracks other parameters of the flute, such as amplitude, continuous pitch change, rests, articulation, timbre, tempi, etc., and uses this information to trigger specific electronic events, and to continuously control all the sounds (that is to say, the digital synthesis algorithms running in the computer). In this way, the player triggers and controls the computer output of this piece during performance.

Some of the sounds in the electronic part come directly from the composed flute part, and are transformed by the computer in real time during the piece. Thus, in certain cases, the musical and sound material for the instrumental and electronic parts are one and the same. Sound material other than the flute is often manipulated via time-stretching and granular sampling. Cross synthesis, and other more standard signal processing such as harmonizing, frequency shifting, phasing, spatialization, etc. are also employed. The instrument/machine relationship moves constantly on a continuum between the poles of an “extended” solo and a duo. Thus, musically, the computer part is sometimes not separate from the flute part, but serves rather to “amplify” the flute in many dimensions and directions; while at the other extreme of the continuum, the computer part has its own independent musical function.

This piece is influenced by and dedicated to the people and the extraordinary musical cultures of Burundi and Rwanda, which I hope will survive present conflicts.

Duration: 14 minutes.

## Performance Notes

accidentals hold for the entire beat (unless otherwise changed)



*al niente, dal niente*



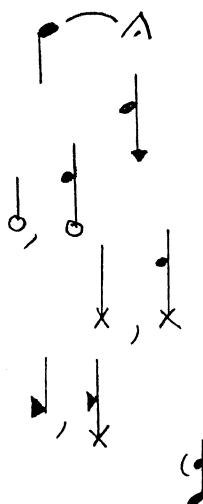
trill or tremolo with the note(s) in parenthesis (if the notes inside and outside of the parenthesis are identical then trill with the same note using two different fingerings)



quarter-tone above or below, oscillate between 1/4 tone higher and lower (approximate), following the graphic description of widening or narrowing range



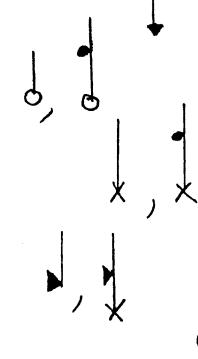
*accelerando* note-group, *ritardando* note-group, play note-group without precise respect for the notated rhythm



strongest *sffz* note-release possible

tongue-ram

air-current noise only slightly pitched, pitched air-current noise



percussive key slap on indicated pitch, percussive key slap and *normale* played note simultaneously

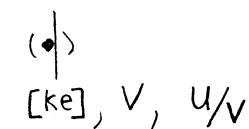


tongue *pizzicato*, tongue *pizzicato* plus percussive key slap



overblow the octave (or even more depending on context)

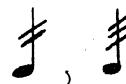
multiphonic sound based on the notated pitch. Multiphonics should be chosen by the player based on the notated pitch under the multiphonic sign. The strength of a multiphonic's spectral content is specified by the darkness of the rectangle above the note, thus: a clear rectangle indicates no multiphonic, half-filled is medium strength, and a completely filled-in rectangle indicates a multiphonic with maximum strength. The arrows indicate moving smoothly to and from a multiphonic while holding the notated pitch.



whisper (unvoiced) the notated syllables into the flute while fingering the notated pitch, voiced whisper into the flute while fingering the notated pitch, combine unvoiced and voiced whispering freely



sing indicated pitch while playing



double tongue, flutter-tongue



electronic event number

**Flute in C**  
 $\approx 84-92$  **EVENT**

**SECTION 1**

1 tr  
 2  
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 4 tr  
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 9 6  
 10 6 tr  
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4      5  
 pp      ff \* p      ff mp      sfz mf  
 (rall.)

6      7  
 accel.      poco (a tempo)  
 f      ff      mf      pp      ff  
 p

8      9  
 pp      ff pp      ff mp ff mf  
 f      mp

10      11  
 mf      f      p  
 [ke-pe]      p

12      13  
 mf      f  
 (poco) (a tempo)  
 (SECTION 3)  
 pp      (sfz) p      (sfz) p      (sfz)

14      15  
 pp      sfz sfz sfz sfz mf  
 sfz ff      mp f      sfz sub.

(a tempo)

*p*      *ffz*      *mp*      *[ke-pe-te]*      *sfz*

④

*p*      *ffz*      *ffz*      *ffz*      *ffz*

⑤

*ffz*      *ffz*      *ff*      *ff*

⑥      *accel.* →      ⑦ (a tempo)

*ffz*      *ffz*      *ff*      *ff*

⑧

*ffz*      *ffz*      *ff*      *ff*

①      *molto lento*      (molto)

*ffz*      *ffz*      *ff*      *ff*

(SECTION 4)

①      *molto lento*      (molto)

*ffz*      *ffz*      *ff*      *ff*

(sim.)      *tr*

*p*

subito  
(a tempo)

*ffz*      *ffz*      *ffz*      *ffz*      *mf*      *f*

②

*ffz*      *ffz*      *ffz*      *ffz*

accel. un poco →

*ffz*      *ffz*      *ffz*      *ffz*

(a tempo) (3)  
(f) (f) (f)  
mp [ke-pe-te-pa]  
(4)  
f p t  
sfz sfz sfz sfz sfz sfz sfz  
(6) (molto)  
(5) accel. ff  
sfz sfz sfz mf fff  
(7) (1) t molto lento t t t t t t  
Electronic (2) p (SECTION 5) <mp>p<mp> ff  
Interlude A (wait for silence)  
(2) sfz p <mp>p <mp>p sfz sfz  
(3) (a tempo) subito  
sfz sfz sfz f =mp (rall.) (molto)  
(4) (a tempo) p mp [ke-pe-te-pa-du]

(5)

3 3 3

*mp*

*f*

(7) *accel.*

(8) (*a tempo*)

(9) *accel.*

(10)

(f) *ff* *mf* *f* *ff* *sfz* *fff*

(11) (*rall. molto*) (*molto*)

(1) (*a tempo*)

Electronic Interlude B

(SECTION 6)

(Wait for silence)

*mf* *f* < *ff* *mf* [ke-pe-te] *[S]* *mf* *(sfz)*

*mf*

*mf*

*p*

*p*

(3) *accel.*

(4) (*poco*) *(a tempo)*

(5)

*f* *ff* *p* *mf* *f*

(6) *accel. poco*

(7) (*a tempo*)

(8) *accel. molto*

*ff* *p* *mf*

accel. molto

ff      => mf      (al mento)

(poco)

① lento → accel poco a poco → a tempo ②

SECTION

mf      [S]      [ke-pe-te]      [ke-pe-te pa-du]

sfz

③

mf

④ accel. molto      ⑤ (a tempo)

mf      ff      p

⑥ accel. molto      ⑦ (a tempo)

mf      ffff      p

⑧ accel. molto

mf

⑨ (a tempo)

10 accel. molto

11 sempre accel.

12 Loco non (non a tempo)

13 accel. molto

14 sempre accel.

15 (sempre accel. →)

16 cresc...

(breathe when necessary)

17

18

19

20

decres. poco a poco...

21 rall. poco a poco...

22 molto rall...

23 (molto)

24 (fHz.)

ELECTRONIC INTERLUDE C

(attacca at end of interlude)

$\approx 58-62$       accel poco a poco →

(1)

p(SECTION 8)

(2) (a tempo) poco stac. →

(non-stac.)

(3)

(4) (poco stac.)

(5) accel poco a poco →

(6) (poco stacc. et a tempo)

(7) (non-stacc.)

(poco stacc.) (8)

⑨ > accel →   
 ff 8 9  
 rit → 8 ⑩ (a tempo) attacca →  
 less pitch (SECTION 9)  
 (rit // un poco)

① (poco stacc.) 7  
 (mp) 6  
 (non stacc.) f  
 (poco stacc.) f 3  
 ff mp ff  
 [ka-pa-tu-pe-ti-pi-ta] [ke-pe-te-pa-du] [S] [ti-pe-da ba-du-ba-da]  
 (molto rapido) (a tempo) ③

② > b b b b b  
 ff mp  
 (poco stacc.) f 6  
 (non stacc.) 5  
 ff 5  
 (poco stacc.) f 3  
 (non stacc.)  
 [tu-pe-du-pe-da-ba-tu-pe-du-pe]  
 [S] (a tempo) ④ (molto rapido) (poco stacc.) (non stacc.)

(poco stacc.) f  
 ff  
 (simile) f  
 ff mp  
 [ti-pe-da-ba-pst-te-ba]

(poco stacc.) f  
 ff  
 6 u  
 [ka-pa-tu-pe-ti-pi] 7  
 ff mp  
 7  
 ff mp  
 [s-pe-te-pe]

7  
 ff mp  
 [ke-pe-te-pa-du-ba-du-ba-di] ff  
 U/V -page 9-

8  
 ff mp  
 [x-x-x-x+xx-xxxx] U/V  
 (unclear syllables - random muttering)

1st system of a musical score for a single instrument. The score consists of three staves. The top two staves are identical, featuring a treble clef, a key signature of one sharp, and common time. The bottom staff has a bass clef and a key signature of one sharp. Measure numbers 8, 9, and 10 are circled above the staves. Various dynamics and performance instructions are included, such as "sfz mp", "sfz", "mp", "ff", and "attacca". Articulation marks like dots and dashes are placed above the notes. Measure 8 ends with a dynamic of "sfz mp". Measure 9 begins with a dynamic of "(mp)". Measure 10 ends with a dynamic of "fff" followed by the instruction "(SECTION 10)". Measure 10 also includes an "attacca" instruction pointing to the beginning of the next section.

2nd system of the musical score. It features three staves. The top two staves have a treble clef, one sharp key signature, and common time. The bottom staff has a bass clef and one sharp key signature. Measure numbers 1 and 2 are circled above the staves. Measures 1 and 2 consist of eighth-note patterns. Dynamics include "mp", "ff mp", "ff", "mf", "mp ff", and "mf". Measure 2 ends with a dynamic of "mf".

3rd system of the musical score. It features three staves. The top two staves have a treble clef, one sharp key signature, and common time. The bottom staff has a bass clef and one sharp key signature. Measure number 3 is circled above the staves. Measures 3 and 4 consist of sixteenth-note patterns. Articulation marks like "tr" and "b" are present. Dynamics include "mf", "ff", "mf", "ff", "mf", "ff", "f", and "mf ff".

4th system of the musical score. It features three staves. The top two staves have a treble clef, one sharp key signature, and common time. The bottom staff has a bass clef and one sharp key signature. Measure number 4 is circled above the staves. Measures 4 and 5 consist of sixteenth-note patterns. Articulation marks like "tr", "b", and "f" are present. Dynamics include "ff", "f", "ff", "mf", "f", "ff", "mf", "mp", "ff", "mf", and "mp".

5      *tr*  
*ff*      *mp ff*      *mf*      *mp* *f*      *ff*

6      *tr*  
*mf*      *mp*      *f*      *ff*      *mp*      *ff*      *>mf*

7      *poco lenio*      *(a tempo)*  
*tr*  
*b* *e* *(b-e)* *b* *e* *(b-e)* *b* *e* *(b-e)* *b* *e* *(b-e)*

8      *poco più lento*      *(a tempo)*  
*mp*      *mf*      *f*      *ff*      *f*      *mf mp*      *f*      *ff f ff*

9      *più lento (a tempo)*  
*tr*  
*b* *e* *(b-e)* *b* *e* *(b-e)* *b* *e* *(b-e)* *b* *e* *(b-e)*

10     *più lento (a tempo)*  
*f*      *mf*      *mp*      *mf < f*      *mf ff*

11     *lento (a tempo)*  
*mf*      *ff*      *mp*      *> p*      *ff > f < ff*      *mf*      *mp*      *> p*

12     *molto lento*  
*tr*  
*b* *e* *(b-e)* *b* *e* *(b-e)* *b* *e* *(b-e)* *b* *e* *(b-e)*