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Subject: Re: Know what you're using. Size of some common types.

Posted by [Lance](#) on Fri, 31 Dec 2021 19:20:48 GMT

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In the spirit of previous discussion with Novo, the following minor change to CtrlCore/CtrlCore.h should decrease the sizeof(Ctrl) and that of all its derivative by 8 bytes on a 64-bit platform. While on 32-bit system there is no gain(Ctrl has been perfectly fine tuned for 32-bit platform), and there should be no penalties either.

Current code:

```
Top      *top;
int      exitcode;

Ctrl     *prev, *next;
Ctrl     *firstchild, *lastchild;//16
LogPos   pos;//8
Rect16   rect;
Mitor<Frame> frame;//16
String   info;//16
int16    caretX, caretY, caretCX, caretCY;//8

byte     overpaint;
```

Proposed change:

```
Top      *top;

Ctrl     *prev, *next;
Ctrl     *firstchild, *lastchild;//16
LogPos   pos;//8
Rect16   rect;
Mitor<Frame> frame;//16
String   info;//16
int16    caretX, caretY, caretCX, caretCY;//8

int      exitcode; // move the line here

byte     overpaint;
```

After the change, sizeof(Ctrl) is reduced from 152 bytes to 144 bytes on 64bit platform (both MSBT22x64 and CLANG64), while on 32bit platform, it remains unchanged with CLANG, but increases by 8 bytes with MSBT22. This increase is unexpected. If anybody can explain it or figure out a way to avoid it, it will be fully appreciated.

@mirek or @klugier, please consider apply the change after identifying and fixing the unexpected behavior with MSBT. The change is too simple to have potential danger and will affect all objects of Ctrl and its derivatives.

PS: By making use of MSC 32 bit flag `_M_IX86`, the above problem could be circumvented as follows:

```
...
Top      *top;
#if defined(_M_IX86) // 32bit MSC compiler
int  exitcode;
#endif

Ctrl     *prev, *next;
Ctrl     *firstchild, *lastchild;//16
LogPos   pos;//8
Rect16   rect;
Mitor<Frame> frame;//16
String   info;//16
int16    caretX, caretY, caretCX, caretCY;//8

#if !defined(_M_IX86)
int      exitcode;
#endif
byte     overpaint;

bool     unicode:1;

bool     fullrefresh:1;

bool     transparent:1;
bool     visible:1;
bool     enabled:1;
bool     wantfocus:1;
bool     initfocus:1;
bool     activepopup:1;
bool     editable:1;
bool     modify:1;
bool     ignoremouse:1;
...
```

## File Attachments

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1) [a.png](#), downloaded 752 times

	MSBT22		CLANG	
	32bit	64bit	32bit	64bit
Original Ctrl	104	152	104	152
Revised Ctrl	112	144	104	144