
Subject: Re: BufferPainter::Clear() optimization
Posted by [Tom1](#) on Mon, 18 May 2020 19:40:50 GMT
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Hi Mirek,

Something like this, maybe... I'm not quite sure as this method reports 16M cache for me -- although this works quite well for me:

```
static int cachesize=999;
INITBLOCK{
#ifndef COMPILER_MSC
int cpuInfo[4];
Zero(cpuInfo);
__cpuid(cpuInfo, 0x80000006);
#else
unsigned int cpuInfo[4];
Zero(cpuInfo);
__get_cpuid(0x80000006, &cpuInfo[0], &cpuInfo[1], &cpuInfo[2], &cpuInfo[3]);
#endif
cachesize=1024*(cpuInfo[2]>>16)*(cpuInfo[2]&0xff);
};

void inline Fill3T(void *b, dword data, int len){
switch(len){
case 3: ((dword *)b)[2] = data;
case 2: ((dword *)b)[1] = data;
case 1: ((dword *)b)[0] = data;
case 0: return;
}
__m128i q = _mm_set1_epi32(*(int*)&data);
__m128i *w = (__m128i*)b;

if(len >= 32) {
__m128i *e = (__m128i*)b + (len>>2) - 8;
if(len >= (cachesize>>2) && ((uintptr_t)w & 3) == 0) { // for really huge data, bypass the cache
_mm_storeu_si128(w, q); // Head align
int s=(-((int)((uintptr_t)b)>>2))&0x3;
w = (__m128i*)((dword*)b) + s;
do {
_mm_stream_si128(w++, q);
}
```

```

_mm_stream_si128(w++, q);
}while(w<=e);
_mm_sfence();
}
else
do {
_mm_storeu_si128(w++, q);
}while(w<=e);
}

if(len & 16) {
_mm_storeu_si128(w++, q);
_mm_storeu_si128(w++, q);
_mm_storeu_si128(w++, q);
_mm_storeu_si128(w++, q);
}
if(len & 8) {
_mm_storeu_si128(w++, q);
_mm_storeu_si128(w++, q);
}
if(len & 4) {
_mm_storeu_si128(w, q);
}
_mm_storeu_si128((__m128i*) (((dword*)b) + len - 4), q); // Tail align
}

```

Best regards,

Tom
