
Subject: Re: SSE2(/AVX) and alignment issues
Posted by [mirek](#) on Sun, 30 Jan 2011 17:24:35 GMT
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tojocky wrote on Sun, 30 January 2011 10:52 Looking in boost code:

```
class X{  
public:
```

```
    explicit X(int n): n_(n){  
    }
```

```
    void * operator new(std::size_t){  
        return std::allocator<X>().allocate(1, static_cast<X*>(0));  
    }
```

```
    void operator delete(void * p){  
        std::allocator<X>().deallocate(static_cast<X*>(p), 1);  
    }
```

```
private:
```

```
    X(X const &);  
    X & operator=(X const &);
```

```
    int n_;  
};
```

```
or  
class Y{  
public:
```

```
    explicit Y(int n): n_(n){  
    }
```

```
    void * operator new(std::size_t n){  
        return boost::detail::quick_allocator<Y>::alloc(n);  
    }
```

```
    void operator delete(void * p, std::size_t n){  
        boost::detail::quick_allocator<Y>::dealloc(p, n);  
    }
```

```
private:
```

```
    Y(Y const &);  
    Y & operator=(Y const &);
```

```
    int n_;
```

```
};
```

where something in the memory allocator we can get alignment of type by:

for Codegear: `alignof(T)`

for GCC: `__alignof__(T)`

for MSC: `__alignof(T)`

according by IBM link and boost source code.

According by boost source code in file `intrinsics.hpp` MSC `__alignof(T)` fails when used with `/Zp` property. We need to be careful.

In this case we can easily use `sse2/3/4/...`:

```
Y y_v = new Y(1);
```

Is possible to implement a tool that can be integrated in the "operator new" of the classes with `sse2/3/4` types properties?

Sorry, if it is a stupid question. I have not experience with sse, but i'm very interested to speed up the program by using `sse2/3/4`.

```
struct Foo {  
    int bar;  
    Y y;  
};
```

and we are back where we were...

Anyway, deeper research has revealed that all this is somewhat obsolete. Where I am heading now is larger vectors of values that are fully encapsulated in some object (which can keep proper alignment) and using the most advanced ISA available...