The humble FIFO

Single Consumer, Single Producer

Get the current write position

Is there room in the fifo?

Write object to current write position

Update write position

Get the current read position

Is there something in the fifo?

Read object from current read position

Update read position


ADC

```
template <typename T> class fifo {
public:
    bool push (T && arg) {
        auto pos  = writepos.load();
        auto next = (pos + 1) % slots.size();

        if (next == readpos.load())
            return false;

        slots[pos] = std::move (arg);
        writepos.store (next);
        return true;
    }

    bool pop(T& result) {
        auto pos = readpos.load();

        if (pos == writepos.load())
            return false;

        result = std::move (slots[pos]);
        readpos.store ((pos + 1) % slots.size());
        return true;
    }
private:
    std::vector<T> slots = {}; std::atomic<int> readpos = {0}, writepos = {0};
};
```

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```
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    bool push (T && arg) {
        auto pos  = writepos.load();
        auto next = (pos + 1) % slots.size();

        if (next == readpos.load())
            return false;

        slots[pos] = std::move (arg);
        writepos.store (next);
        return true;
    }

    bool pop(T& result) {
        auto pos = readpos.load();

        if (pos == writepos.load())
            return false;

        result = std::move (slots[pos]);
        readpos.store ((pos + 1) % slots.size());
        return true;
    }
private:
    std::vector<T> slots = {}; std::atomic<int> readpos = {0}, writepos = {0};
};
```

Update read position

Which FIFO is right for you?

Ask yourself two questions?