NAME

ieee80211_input - software 802.11 stack input functions

SYNOPSIS

#include <net80211/ieee80211_var.h>

void
ieee80211_input(*struct ieee80211_node **, *struct mbuf **, *int rssi*, *int noise*);

void
ieee80211_input_all(*struct ieee80211com **, *struct mbuf **, *int rssi*, *int noise*);

DESCRIPTION

The **net80211** layer that supports 802.11 device drivers requires that receive processing be single-threaded. Typically this is done using a dedicated driver taskqueue(9) thread. **ieee80211_input**() and **ieee80211_input_all**() process received 802.11 frames and are designed for use in that context; e.g. no driver locks may be held.

The frame passed up in the *mbuf* must have the 802.11 protocol header at the front; all device-specific information and/or PLCP must be removed. Any CRC must be stripped from the end of the frame. The 802.11 protocol header should be 32-bit aligned for optimal performance but receive processing does not require it. If the frame holds a payload and that is not aligned to a 32-bit boundary then the payload will be re-aligned so that it is suitable for processing by protocols such as ip(4).

If a device (such as ath(4)) inserts padding after the 802.11 header to align the payload to a 32-bit boundary the IEEE80211_C_DATAPAD capability must be set. Otherwise header and payload are assumed contiguous in the mbuf chain.

If a received frame must pass through the A-MPDU receive reorder buffer then the mbuf must be marked with the M_AMPDU flag. Note that for the moment this is required of all frames received from a station and TID where a Block ACK stream is active, not just A-MPDU aggregates. It is sufficient to check for IEEE80211_NODE_HT in the *ni_flags* of the station's node table entry, any frames that do not require reorder processing will be dispatched with only minimal overhead.

The *rssi* parameter is the Receive Signal Strength Indication of the frame measured in 0.5dBm units relative to the noise floor. The *noise* parameter is the best approximation of the noise floor in dBm units at the time the frame was received. RSSI and noise are used by the **net80211** layer to make scanning and roaming decisions in station mode and to do auto channel selection for hostap and similar modes. Otherwise the values are made available to user applications (with the rssi presented as a filtered average over the last ten values and the noise floor the last reported value).

SEE ALSO
   ieee80211(9)