CLAIMS

What is claimed:

1. A method for LDPC encoding, comprising:

at a transmitting device, based on the number of information bits to be delivered in a packet, determining an initial number of OFDM symbols;

determining an STBC value; and

determining a number of extra symbols value based on said initial number of OFDM symbols, wherein a final number of OFDM symbols is based on said initial number of OFDM symbols and said number of extra symbols value; and

generating an LDPC extension value based on said STBC value and said number of extra symbols value for purposes of determining LDPC parameters associated with said packet.

2. The method of Claim 1, wherein said determining a number of extra symbols comprises:

performing shortening and puncturing operations to determine said final number of OFDM symbols; and

signaling said final number of OFDM symbols in said packet.

3. The method of Claim 1, further comprising:

at a receiving device, receiving said packet from said transmitting device;

parsing said LDPC extension value from a header of said packet;

parsing said final number of OFDM symbols from a signal field of said packet;

determining said number of extra symbols value based on said STBC value and said LDPC extension value; and

determining said initial number of OFDM symbols based on said LDPC extension value and said final number of OFDM symbols.

4. The method of Claim 1, further comprising:

encoding said LDPC extension value in a header of said packet;

wherein when said STBC is 0 and said number of extra symbols value is 0, then LDPC extension value is 0;

wherein when said STBC is 0 and said number of extra symbols value is 1, then LDPC extension value is 1;

wherein when said STBC is 1 and said number of extra symbols value is 0, then LDPC extension value is 0; and

wherein when said STBC is 1 and said number of extra symbols value is 2, then LDPC extension value is 1.

5. The method of Claim 1, wherein determining an Nldpc_ext value comprises:

assuming said LDPC extension value is 1;

determining said number of extra symbols value is 1 when said STBC is 0; and

determining said number of extra symbols value is 2 when said STBC is 1.

6. The method of Claim 1, wherein said packet is in compliance with a 802.11ac standard or its derivatives.

7. The method of Claim 1, further comprising:

wherein said final number of OFDM symbols is an integer value; and

wherein a number of code words is an integer value.

8. The method of Claim 1, further comprising:

at said transmitting device, maximizing MAC padding to the maximum number of bytes to ensure one-to-one mapping between said initial number of OFDM symbols and Npld.

9. A device handling a packet of information, wherein said packet comprises:

an Nsym value;

an STBC value;

an Nldpc_ext value based on said STBC value and a number of extra symbols (Nsym_ext) value determined for said packet based on an initial number of OFDM symbols (Nsym_init), wherein said Nldpc_ext value is for purposes of determining LDPC parameters associated with said packet.

10. The device of Claim 9,

wherein when STBC is 0 and Nsym_ext is 0, then Nldpc_ext is 0;

wherein when STBC is 0 and Nsym_ext is 1, then Nldpc_ext is 1;

wherein when STBC is 1 and Nsym_ext is 0, then Nldpc_ext is 0; and

wherein when STBC is 1 and Nsym_ext is 2, then Nldpc_ext is 1.

11. The device of Claim 9, wherein said packet is in compliance with a 802.11ac standard or its derivatives.

12. A device for interpreting a packet of information, wherein said packet comprises:

an Nsym value; and

an STBC value;

wherein an Nldpc_ext value based on said STBC value and a number of extra symbols (Nsym_ext) value is assumed to be 1 for said packet, wherein said Nldpc_ext value is for purposes of determining LDPC parameters associated with said packet.

13. The device of Claim 12,

wherein when STBC is 0, then Nsym_ext is 1; and

wherein when STBC is 1, then Nsym_ext is 2.

14. A system for LDPC encoding, comprising:

at a transmitting device, an LDPC encoder for determining an initial number of OFDM symbols (Nsym_init) based on the number of information bits to be delivered in a packet;

wherein said LDPC encoder determines a number of extra symbols (Nsym_ext) value based on said Nsym_init, wherein an Nsym value is based on said Nsym_init value and said Nsym_ext value; and

at said transmitting device, an extension calculator for generating an Nldpc_ext value based on said STBC value and said Nsym_ext value for purposes of determining LDPC parameters associated with said packet.

15. The system of Claim 14, wherein said LDPC encoder performs shortening and puncturing operations to determine said Nsym value, and signals said Nsym value in said packet.

16. The system of Claim 14, wherein said LDCP encoder at said transmitting device encodes said Nldpc_ext value in a header of said packet;

wherein when STBC is 0 and Nsym_ext is 0, then Nldpc_ext is 0;

wherein when STBC is 0 and Nsym_ext is 1, then Nldpc_ext is 1;

wherein when STBC is 1 and Nsym_ext is 0, then Nldpc_ext is 0; and

wherein when STBC is 1 and Nsym_ext is 2, then Nldpc_ext is 1.

17. The system of Claim 14, wherein said extension calculator assigns said Nldpc_ext value to 1;

wherein when STBC is 0, then Nsym_ext is 1; and

wherein when STBC is 1, then Nsym_ext is 2.

18. The system of Claim 14, further comprising:

at said transmitting device, a MAC padder that maximizes MAC padding to the maximum number of bytes to ensure one-to-one mapping between Nsym_init and Npld.

19. The system of Claim 14, further comprising a receiving device configured to receive said packet from said transmitting device, wherein said receiving device comprises:

a parser for parsing said Nldpc_ext value from a header of said packet, and for parsing said Nsym value from a signal field of said packet; and

an LDPC decoder for determining said Nsym_ext value based on said STBC value and said Nldpc_ext value, and for determining said Nsym_init value based on said Nldpc_ext value and said Nsym value.

20. The system of Claim 19, wherein at said receiving device, said LDPC decoder determines that Nsym_ext is 0 and Nsym_ext is 1 when STBC is 0; and said LDPC decoder determines that Nsym_ext is 0 and Nsym_ext is 2 when STBC is 1.

21. A system for LDPC encoding, comprising:

at a receiving device configured to receive a packet including a number of OFDM symbols (Nsym) value and an extension value (Nldpc_ext), a parser for

parsing said Nldpc_ext value from a header of said packet, and for parsing said Nsym value from a signal field of said packet; and

an LDPC decoder for determining an Nsym_ext value based on an STBC value contained within said packet and said Nldpc_ext value, and for determining said Nsym_init value based on said Nsym_ext value and said Nsym value.

CLAIMS

1. A method for a low density parity check (LDPC) encoding, comprising:

at a transmitting device, based on a number of information bits to be delivered in a packet, determining an initial number of orthogonal frequency division multiplexing (OFDM) symbols;

determining a space time block coding (STBC) value; and

determining a number of extra symbols value based on said initial number of OFDM symbols, wherein a final number of OFDM symbols is based on said initial number of OFDM symbols and said number of extra symbols value;

generating an LDPC extension value based on said STBC value and said number of extra symbols value for purposes of determining LDPC parameters associated with said packet;

encoding said LDPC extension value in a header of said packet,

wherein when said STBC value is 0 and said number of extra symbols value is 0, then said LDPC extension value is 0;

wherein when said STBC value is 0 and said number of extra symbols value is 1, then said LDPC extension value is 1;

wherein when said STBC value is 1 and said number of extra symbols value is 0, then said LDPC extension value is 0; and

wherein when said STBC value is 1 and said number of extra symbols value is 2, then said LDPC extension value is 1;

at a receiving device, when said LDPC extension value is 1,

determining said number of extra symbols value is 1 when said STBC value is 0; and

determining said number of extra symbols value is 2 when said STBC value is 1.

2. The method of Claim 1, wherein said determining said number of extra symbols value comprises:

performing shortening and puncturing operations to determine said final number of OFDM symbols; and

signaling said final number of OFDM symbols in said packet.

3. The method of Claim 1, further comprising:

at said receiving device, receiving said packet from said transmitting device;

parsing said LDPC extension value from a header of said packet;

parsing said final number of OFDM symbols from a signal field of said packet;

determining said number of extra symbols value based on said STBC value and said LDPC extension value; and

determining said initial number of OFDM symbols based on said LDPC extension value and said final number of OFDM symbols.

4. The method of Claim 1, wherein said packet is in compliance with an IEEE 802.11ac standard or its derivatives.

5. The method of Claim 1, further comprising:

wherein said final number of OFDM symbols is an integer value; and

wherein a number of code words is an integer value.

6. The method of Claim 1, further comprising:

at said transmitting device, maximizing MAC padding to a maximum number of bytes to ensure one-to-one mapping between said initial number of OFDM symbols and a number of bits in a data structure (Npld).

7. A device handling a packet of information, wherein said packet comprises:

a number of orthogonal frequency division multiplexing (OFDM) symbols (Nsym) value;

a space time block coding (STBC) value;

a number of extra symbols for low density parity check (LDPC) parameter determination associated with said packet (Nldpc_ext) value based on said STBC value and a number of extra symbols (Nsym_ext) value determined for said packet based on an initial number of OFDM symbols (Nsym_init),

wherein when said STBC value is 0 and said Nsym_ext value is 0, then said Nldpc_ext value is 0;

wherein when said STBC value is 0 and said Nsym_ext value is 1, then said Nldpc_ext value is 1;

wherein when said STBC value is 1 and said Nsym_ext value is 0, then said Nldpc_ext value is 0; and

wherein when said STBC value is 1 and said Nsym_ext value is 2, then said Nldpc_ext value is 1.

8. The device of Claim 7, wherein said packet is in compliance with an IEEE 802.11ac standard or its derivatives.

9. A device for interpreting a packet of information, wherein said packet comprises:

a number of orthogonal frequency division multiplexing (OFDM) symbols (Nsym) value; and

a space time block coding (STBC) value;

wherein when a number of extra symbols for low density parity check (LDPC) parameter determination associated with said packet (Nldpc_ext) value, based on said STBC value and a number of extra symbols (Nsym_ext) value, is 1 for said packet,

when said STBC value is 0, then said Nsym_ext value is 1, and

when said STBC value is 1, then said Nsym_ext value is 2.

10. A system for low density parity check (LDPC) encoding, comprising:

at a transmitting device, an LDPC encoder for determining an initial number of orthogonal frequency division multiplexing (OFDM) symbols (Nsym_init) value based on a number of information bits to be delivered in a packet, wherein said LDPC encoder determines a number of extra symbols (Nsym_ext) value

based on said Nsym_init value, wherein an Nsym value is based on said Nsym_init value and said Nsym_ext value; and

at said transmitting device, an extension calculator for generating a number of extra symbols for LDPC parameter determination associated with said packet (Nldpc_ext) value based on a space time block coding (STBC) value and said Nsym_ext value,

wherein said LDPC encoder at said transmitting device encodes said Nldpc_ext value in a header of said packet;

wherein when said STBC value is 0 and said Nsym_ext value is 0, then said Nldpc_ext value is 0;

wherein when said STBC value is 0 and said Nsym_ext value is 1, then said Nldpc_ext value is 1;

wherein when said STBC value is 1 and said Nsym_ext value is 0, then said Nldpc_ext value is 0; and

wherein when said STBC value is 1 and said Nsym_ext value is 2, then said Nldpc_ext value is 1;

at a receiving device configured to receive said packet from said transmitting device, a parser for parsing said Nldpc_ext value from a header of said packet, and for parsing said Nsym value from a signal field of said packet; and

at said receiving device, an LDPC decoder for determining said Nsym_ext value based on said STBC value and said Nldpc_ext value, and for determining said Nsym_init value based on said Nldpc_ext value and said Nsym value, wherein at said receiving device, said LDPC decoder determines that said Nsym_ext value is 1 when said Nldpc_ext value is 1 and said STBC value is 0; and

said LDPC decoder determines that said Nsym_ext value is 2 when said Nldpc_ext value is 1 and said STBC value is 1.

11. The system of Claim 10, wherein said LDPC encoder performs shortening and puncturing operations to determine said Nsym_ext value, and signals said Nsym value in said packet.

12. The system of Claim 10, wherein said extension calculator assigns said Nldpc_ext value to 1;

wherein when said STBC value is 0, then said Nsym_ext value is 1; and

wherein when said STBC value is 1, then said Nsym_ext value is 2.

13. The system of Claim 10, further comprising:

at said transmitting device, a MAC padder that maximizes MAC padding to a maximum number of bytes to ensure one-to-one mapping between said Nsym_init value and a number of bits in a data structure (Npld).