How to write a revised paper

when a paper is conditionally accepted or rejected

Yoshikazu Miyanaga

Hokkaido University, Japan

vice-President of IEICE Engineering Sciences Society

Editor's Decision from two reviewers

	Publish in the IEICE Transactions as it is	Resubmit after MINOR revision	Reject (MAJOR revision)	Reject
Publish in the IEICE Transactions as it is	Accept	**Conditionally Accept**	**Conditionally Accept**(50%) or Reject	Reject
Resubmit after MINOR revision	**Conditionally Accept**	**Conditionally Accept**	Reject(90%) or **Conditionally Accept**	Reject
Reject (MAJOR revision).	**Conditionally Accept**(50%) or Reject	Reject(90%) or **Conditionally Accept**	Reject	Reject
Reject	Reject	Reject	Reject	Reject

Note that this is a typical example and thus some editors made different decisions.

Conditionally Accepted Paper

- Difference between minor and major revision
- Theoretically, minor revision means …
  - It is easy for authors to revise it in a few days.
  - Only some parts of the paper should be rewritten.
    - **NO CHANGE** is required in theory and experiments.

Example 1

IEICE TRANS. FUNDAMENTALS, VOL.E1–A, NO.1 JANUARY 1918

PAPER

VLSI Implementation of a Complete Pipeline MMSE Detector for a 4x4 MIMO-OFDM Receiver

SUMMARY This paper presents a VLSI architecture of MMSE detection in a 4x4 MIMO-OFDM receiver. Packet-based MIMO-OFDM imposes a considerable throughput requirement on the matrix inversion because of strict timing in frame structure and subcarrier-by-subcarrier basis processing. Pipeline processing oriented algorithms are preferable to tackle this issue. We propose a pipelined MMSE detector using Strassen's algorithms of matrix inversion and multiplication. This circuit achieves real-time operation which does not depend on numbers of subcarriers. The designed circuit has been implemented to a 90-nm CMOS process and shows a potential for providing a 2.6-Gbps transmission speed in a 160-MHz signal bandwidth.

key words: *Wireless communications, MIMO-OFDM, MIMO detection, MMSE.*

1. Introduction

A MIMO-OFDM scheme, given by the combination of multi-input multi-output antennas (MIMO) and orthogonal frequency division multiplexing (OFDM), attracts a great deal of attention in recent wireless communications. The IEEE802.11n provides date rates of up to 600 Mbps by use of four spatial streams. The wireless chip presented by Atheros Communications supports up to two spatial streams and can deliver 300

Algorithms of MIMO detection are divided into linear detection [3]-[6] ordered successive interference cancellation (OSIC) [7], [8], and maximum-likelihood (ML) detection [9], [10]. They have trade-offs between complexity and MIMO decoding performance. This paper focuses on the linear detection because the other algorithms are still difficult to meet the throughput requirement of over 1 Gbps in MIMO-OFDM systems having a large number of subcarriers*. The linear detection is based on inverting a channel matrix using zero-forcing (ZF) or minimum mean squared error (MMSE) criterion, where their implementations have been reported in [3]-[4] and [5]-[6], respectively. However, they suffer from the increase of the subcarriers. For an instance, the work [5] provided 38.4 μs of processing time for 64 subcarriers in the MMSE detection. It corresponds to processing latency of ten data symbols in the IEEE802.11n frame. Our target is to achieve processing latency at nanosecond order time in a 4x4 MIMO-OFDM receiver.

This paper presents a complete pipelined architecture of the MMSE detection. The pipelined architecture can offer high throughput performance indepen-

Conditions from 1st Reviewer

1. Fig.5; Indicate the name of y axis.
2. Fig.5; In Sec.6, you have chosen the divider's word length as w+8bit. Give reasonable explanation with concrete data if this length enough for divider's.
3. Table 2: Compare power consumption with Ref.[3] or other methods' in order to clarify the proposed one has enough small or adequate power consumption.

➡ The last comment is not **DIFFICULT**. However authors need to rewrite this part carefully.

Reviewer is the first Reader

- For authors, it is easy to read their paper. **They wrote it.**
  - The paper is not written for authors.
- It should be written for all readers.
  - If a reader cannot understand the paper, it is worthless for publish.
  - The reviewer is on the side of readers.
    - Note the reviewer is a professional reader in this field.

Conditions from 2nd Reviewer

1. T_HT-LTFs and T_GI were not explicitly defined. Please define these variables (p. 2, Fig. 1)
2. The vertical axis of Fig. 5 has no labels. Please attach a label on the figure.
3. In Section 5.1, the word-length was determined through the simulation. However, the simulation model in order to run the simulation was not well determined.
4. Please explain why the error floor occurred in the high SNR region (40dB and above) even when the floating point processing was assumed.

➡ The 3rd and 4th comments are a little DIFFICULT. The authors should **carefully** and **concisely** rewrite these parts.

Answer All Comments

- The reviewer's comments are conditions.
  - The term of “condition” has STRONG meaning.
  - Authors must answer all of conditions.
  - Even if only one comment is skipped in the revised paper, the paper may be rejected.

Revised Paper of Example 1

This is the revised paper. It needs **one month**.

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SUMMARY This paper presents a VLSI architecture of MMSE detection in a 4x4 MIMO-OFDM receiver. Packet-based MIMO-OFDM imposes a considerable throughput requirement on the matrix inversion because of strict timing in frame structure and subcarrier-by-subcarrier basis processing. Pipeline processing oriented algorithms are preferable to tackle this issue. We propose a pipelined MMSE detector using Strassen's algorithms of matrix inversion and multiplication. This circuit achieves real-time operation which does not depend on numbers of subcarriers. The designed circuit has been implemented to a 90-nm CMOS process and shows a potential for providing a 2.6-Gbps transmission speed in a 160-MHz signal bandwidth.

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This paper presents a complete pipelined architecture of the MMSE detection. The pipelined architecture can offer high throughput performance indepen-

Revised Paper of Exp 1

Make the revised points clear.

2

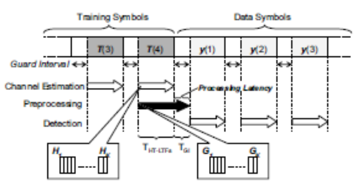

Fig. 1 Frame structure of a packet-based MIMO-OFDM system and timing chart of the MIMO detection.

$$y_k(t) = H_k s_k(t) + n_k(t), \quad (1)$$

where $s_k(t)$ is the transmitted vector and $n_k(t)$ denotes the channel noise. The purpose of the MIMO detection to extract $s_k(t)$ from the received vector. The linear detection inverts the channel matrix using ZF or MMSE criterion. The ZF computes the inverse matrix of H_k^{-1}. The inverse channel matrix G_k by the MMSE detection is given by

$$G_k = (H_k^H H_k + \sigma^2 I)^{-1} H_k^H, \quad (2)$$

where σ^2 indicates the noise variance and $(\cdot)^H$ denotes a function of Hermitian transpose. The matrix inversion of Eq. (2) is called as preprocessing. The final step is to decode the approximate transmit vectors by using

$$\hat{s}_k(t) = G_k y_k(t). \quad (3)$$

The frame structure assuming the IEEE802.11n PHY frame with four spatial streams i.e., M_T=4, an M_R=4, and K=108, is illustrated in Fig. 1. The cha nel information of H_k is obtained from the four t ing symbols in four spatial streams. The preproc ing starts from sending the channel matrix at the fi data subcarrier H_1 and ends by producing the in se matrix at the last subcarrier G_K. We conside eal-time operation that the detection at Eq. (3) can mediately be executed when accepting the rec ed ata symbols of y_k, which imposes on strict timing e preprocessing. In this case, the acceptable pro me and latency are provided by $T_{HT-LTFs}$+T and T_{GI}, respectively. $T_{HT-LTFs}$ indicates a duration in the training symbol. The data symbol has the same duration. T_{GI} denotes a guard interval duration. The IEEE802.11n sets $T_{HT-LTFs}$ and T_{GI} μs to 3.2 μs and 0.4 μs (using the short GI), respectively. The processing latency must be shorter than the guard interval length. Otherwise, the latency induces the requirement of large sized FIFO memory for data buffering and causes the packet reception delay. The large number of subcarriers (e.g., more than a half thousand) must be considered to obtain more higher transmission speeds of over 1 Gbps in addition. [4]

3. Implementation Issues o

In the MIMO processing, the i trix inversion has been a discu its considerable complexity. Ga analytic solution are known as f tion of matrix inversion. LU as a modified form of Gaussian plexity reduction. QR decomp pseudo-inverse matrix and main reated in the OSIC algorithm [7], [8]. In the linea etection, the related works [3], [4] apply Sherman- rrison formula as matrix inversion lemma which akes use of the matrix of P_k=$H_k^H H_k$+$\sigma^2 I$ from q. (2). For a square matrix for equal transmit an eceive antennas (M_T=M_R), the matrix P_k become Hermitian matrix, which enables modified Choles decomposition as a special case of LU decompositi [11]. Strassen's matrix inversion comes from analy solution, which divides a square matrix into equ mall submatrices [12], [13]. This algorithm has b used for matrix inversion in the ZF detection [3] We focus on the MMSE detection by Strassen's trix inversion from the following advantages:

- Th target matrix P_k has complex conjugate sym tric values at non-diagonal components. The in erted matrix has the same characteristic. These symmetries are favorable to sharing submatrix arithmetic units.
- The analytic solution of Strassen's matrix inversion provides systematic matrix operations for the submatrices. The simple structure, consisting of only submatrix arithmetic operations, can actualize a pipeline architecture in the MMSE detector.

A pipeline architecture exploits the full potential of computing performance on application-specific hardware. For even the linear detection, the conventional architectures apply pipelining to a small part of the detector and rely on iterative operations for the most part [3]-[6]. The proposed complete pipeline architecture for the MMSE detector is described in the following section.

4. Proposed Pipeline Architecture

4.1 Block Diagram

The objective is to design a complete pipeline architecture that the processing latency does not depend on numbers of subcarriers. Also, it has the advantage of connecting the preprocessing block with the other blocks (e.g., a pipelined FFT processor and a Viterbi decoder) by pipeline chaining . The block diagram of the proposed architecture for the preprocessing is illustrated in Fig. 2. We use the intermediate values of

mplex arithmetic operations for P_k^{-1}.

	CMul	CDiv/CRec
[5]	188	4
[11]	92	4

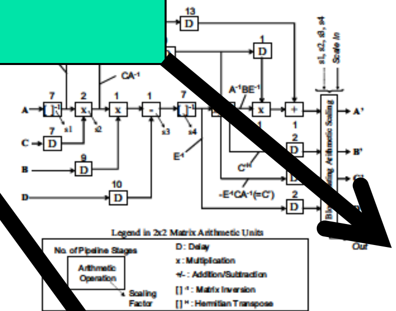

Fig. Circuit structure of the matrix inversion.

becomes a real va in this case. The Newton-Raphson method can be a lied for real reciprocal calculation. The numbers complex arithmetic operations for computing P_k^{-1}, co sponding to the 4x4 matrix multiplication and inver n at Eqs. (4) and (6), are shown in Table 1. "CMul nd "CDiv/CRec" denote complex multiplication and d sion/reciprocal, respectively. The same matrix mul lication at Eq. (9) is introduced in both modified Ch sky and Strassen's algorithm. The use of Strassen alg thm provides the equivalent complexity of the modifie holesky and reduces to two reciprocals.

The important advantage for the p osed architecture is that the Strassen's matrix inve n can independently compute the submatrices withou erative operations. The circuit structure of the matr inversion with 22 pipeline stages is illustrated in Fig. Th main stages (from A to A') compute the submatric E^{-1} and F and produce the other submatrices o CA^{-1}, and $E^{-1}CA^{-1}$ on the way. The submatrix of B' can be computed from the Hermitian transpose of C'. The 2x2 matrix arithmetic units with internal pipeline stages have been implemented in this circuit. The block floating scaling factors of $s1$, $s2$, $s3$, and $s4$ are settled to decrease the finite length errors in the 2x2 matrix multiplication and inversion units. The block floating adjusts a maximum value for a 2x2 matrix Ω so as to satisfy $1/4 \leq \max|\Omega_{ij}| < 1/2$.

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Table 2 Simulation parameters. [6]

Modulation Type	64QAM-OFDM
Signal Bandwith	40 MHz
FFT Size	128
No. of Data Subcarriers	108
FFT Length	3.2 μs
Guard Interval Duration	0.4 μs
Packet Length	1500 Byte
Channel Model	Multipath Rayleigh Fading
Multipath Delay Profile	8-Path Exponentially Decaying
Max. Doppler Frequency	1 Hz
RMS Delay Spread	50 ns
MIMO Spatial Correlation	i.i.d.
Symbol Timing	Ideal
Channel Estimation	Calculation at Training Symbols
Error Correcting	Convolutional Coding (R=3/4) Soft-Decision Viterbi Decoding

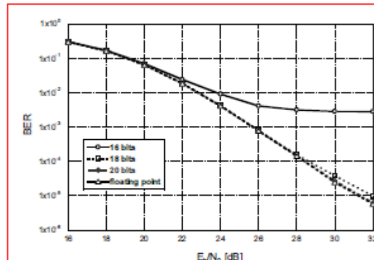

Fig. 5 Fixed-point and floating-point simulation results for the wordlength determination. [1] [5] [7]

5. Implementation

5.1 Wordlength Determination

The wordlength determination is an indispensable task to find an appropriate trade-off point between circuit area and arithmetic precision. To find the trade-off, we use fixed-point and floating-point (64-bit double precision) simulations. The simulation results of bit error rates (BERs) are shown in Fig. 5, where the wordlength of fixed-point representation is given by w bits. In the MIMO detector, the wordlengths of the 4x4 matrix multiplication and the 4x4 matrix inversion are represented by w and w+8 bits, respectively†. The other parts use a floating-point operation. The 4x4 MIMO-OFDM based on IEEE802.11n with a 64-QAM mod- [2]

†These wordlengths indicate an output bus bandwidth in each unit. The internal circuits have larger wordlengths. For instance, the data buses of $2w$ and $2(w+8)$ bits are used for the complex multiplication and the reciprocal calculation in the 4x4 matrix inversion. [2]

Answer Sheet of Example 1

Reply Letter

We are grateful for the valuable comments and suggestions you made on our original draft. We revised the draft and would like to the reviewers' comments.

Reviewer #1

----

[1] Fig.5; Indicate the name of y axis.

Revisions: pp. 4 Fig. 5

Response:

We added the notation of "BER" on vertical axis. The plots in Fig. 5 were revised according to the reviewer's comment in [7].

[2] Fig.5; In Sec.6, you have chosen the divider's word length as w+8bit. Give reasonable explanation with concrete data if this length enough for divider's.

Revisions: pp. 5 right line 9-12, pp. 5 footnote

Response:

The wordlengths of *w* and *w+8* bits indicate an output bus bandwidth in each matrix operation unit. The internal circuits need larger wordlengths. In the matrix inversion, *2w* and *2(w+8)* bits are used for the multiplication and the reciprocal calculation (division). The previous draft was unclear about these wordlengths. We added the above explanation in a footnote.

[3] Table 2: Compare power consumption with Ref.[3] or other methods' in order to clarify the proposed one has enough small or adequate power consumption. Readers might think the proposed chip consumes high power due to its huge number of gates as indicated in the Table.4.

Revisions: pp. 6 left line 10-30, pp. 6 Reference [15]

Response:

We made a rough estimate of dynamic power dissipation from the switching power equation because the references [3]-[5] have not reported their results in power dissipation. We compared the operating frequency and the gate count in Table 5 according to the switching power equation. The proposed detector consumes power by 13.8 times larger than that of the reference [3]. However, there are large differences between them in the processing latency. Hence, we compared dissipated energy given by a product of the processing latency and the power dissipation. The dissipated energy becomes 1/10 of the reference [3] for 128 subcarriers. We consider that the proposed detector has adequate power performance in view of energy efficiency. The large peak power in the proposed detector should be small for further power reductions. We added the above considerations in Section 6.

Reviewer #2

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[4] T_HT-LTFs and T_GI were not explicitly defined. Please define these variables. (p. 2, Fig. 1)

Revisions: pp. 2 left line 28-30.

Response:

We added the definitions of $T_{HT\text{-}LTFs}$ and T_{GI} in Section 2.

[5] The vertical axis of Fig. 5 has no labels. Please attach a label on the figure. The term "SNR" was used in the vertical axis of the same figure. However, SNR is not a good parameter in order to evaluate the communication system. SNR depends not only on the received signal power and the noise power spectrum density but also on the channel filter bandwidth. Instead of SNR, the term CNR (Carrier to Noise power Ratio) is often used in order to evaluate the wireless communication system. CNR is defined as a ratio between the received signal power and the noise power within the signal bandwidth and does not depend on the channel filter. E_b/N_0 (The energy per bit to noise

model in order to run the simulation was not well determined. Although the manuscript said that "the

Authors have to make the answer sheet **very carefully**.

How to write an answer sheet

Style

- Title : Reply Letter
- Greetings (maybe preferable)
- Answer for Reviewer #1
  1. 1st Comment itself
  2. Locations of its Revision
  3. Answer of this comment

  4. 2nd Comment itself
  5. Locations of its Revision
  6. Answer of this comment

  7. …

Reply Letter

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Revisions: pp. 5 right line 9-12, pp. 5 footnote

Response:

The wordlengths of w and $w+8$ bits indicate an output bus bandwidth in each matrix operation unit. The internal circuits need larger wordlengths. In the matrix inversion, $2w$ and $2(w+8)$ bits are used for the multiplication and the reciprocal calculation (division). The previous draft was unclear about these wordlengths. We added the above explanation in a footnote.

The Revised Paper

- The revised information should have
  - Revised paper itself,
  - Answer sheet for reviewers, and
  - Reply letter to the associate editor
    - if authors have also received the comments from the associate editor.
- The revised paper of Example 1 was **accepted**.

Example 2

IEICE TRANS. FUNDAMENTALS, VOL.E1–A, NO.1 JANUARY 1918

PAPER

A Variable Wordlength Technique for Soft-decision Viterbi Decoder to Reduce Power Dissipation in Wireless LAN System

SUMMARY This paper describes the design of a new, variable wordlength, soft-decision Viterbi decoder that can significantly reduce power dissipation in wireless local area network (LAN) hardware. By taking into account the dynamic range of the time-varying channel coefficients, the quantization level is adjusted to suit the observed instantaneous link quality, i.e., the decoder wordlength is adjusted to maintain packet error rate (PER) requirements and low power dissipation. Unlike the conventional of 8-bit fixed-wordlength decoder, our radix-4 Viterbi decoder can reduce power consumption by up to 30.6% under multipath fading channel conditions.

key words: *Viterbi decoder, power reduction, variable wordlength, Wireless LAN.*

1. Introduction

Wireless communication systems using orthogonal frequency division multiplexing (OFDM) and multiple-input multiple-output (MIMO) have been developed for high-throughput data transmission. These techniques are have now been deployed on mobile phones, wireless local area networks (LANs), and digital broadcasting networks. However, these techniques also require the fast execution of a high number of operations, which

proach for OFDM. It can improve performance without a high computational cost. The input metric for the soft quantizer is computed by multiplying a weighting factor (the square of the channel coefficient) with the square of Euclidian distance between the received and reference symbols [3]. This procedure is known as metric weighting. Power consumption of the Viterbi decoder and its performance are directly related to the quantization level in the soft quantizer, which subsequently determines the wordlength for the internal operations of the soft-decision Viterbi decoder.

The determination of wordlength in digital signal processing (DSP) is an important task because wordlength affects hardware size, system performance, and power consumption. A large wordlength yield better performance in digital hardware but increases power consumption. On the other hand, a small wordlength degrades system performance if the dynamic range is insufficient [4]. Wireless communication systems require a wordlength sufficient for various environments. In other words, the wordlength necessary to maintain good performance depends on the wireless environment.

Associate Editor's Comment

Our panel of reviewers point out that the manuscript should be revised before publishing because there exist some ambiguities in the current manuscript. It is required to enhance the reliability of the simulation and the environmental assumptions should persuasively explained.

In some cases, authors have comments from an associate editor. This is NOT very serious issue. However authors should carefully revise the paper more since there are additional and important issues in their paper except the reviewer's comments.

Conditions from the 1st Reviewer

1. Strength: Reduction of power dissipation by simplifying the computation of metric based on the target PER using right-shift operation.

   Weakness: Consistency of the theory and performance results. The reduction is not too significant because the considered equalizer may not perform well because of the existing noise enhancement.

Conditions from the 1st Reviewer

2. Mandatory Revisions: Check carefully your simulations. Why is the performance of QPSK (in Channel A) worse than 16QAM (in Channel A). Theoretically the performance of 16QAM should be worse than QPSK. When the channel is good (AWGN), it is about 3dB, but vary in fading channel (according to the fading model). The explanation in the paper (packet length) could not be accepted, because for the case of Channel C, the result is reasonable.

Optional Revisions: To the best reviewer's knowledge, the MMSE has better performance than ZF to perform equalization. MMSE considers the variance of noise so that a noise enhancement can be minimized. However, ZF perform equalization independent of the noise variance. The visualization of ZF and MMSE can be further studied in many references for example [1].

The use of MMSE equalization may improve the performance so the target PER can be achieved in a lower SNR and more power dissipation can be reduced.

[1]. T. Sao, F. Adachi, Comparative study of various Frequency Equalization Techniques for Downlink of a Wireless OFDM-CDMA System, IEICE Trans., Comm, Vol.E86-B, No. 1, Jan. 2003, pp. 352-364.

3. Minor revisions:

- What is "iteration=10,000" in Table 2.
- What is the structure of convolutional code? Constraint length K=7 is not enough. The generator code should be mentioned.
- What is the length of Guard Interval/Cyclic Prefix?
- How do you estimate the Channel coefficient H_k?
- What is the FFT size?

There are many comments from the 1st reviewer.

It seems this reviewer gives the decision of "REJECT".

Conditions from the 2nd Reviewer

Strength:

Viterbi decoder is widely used telecommunication systems as well as wireless systems. Proposed method is able to apply most of these systems.

Weakness:

I think that your method is not suitable for current WLAN systems, if the PER is used for wordlength control. The simulation results shown in Fig.10 suggest that the wordlength-adaptation rule will affect power consumption and an error from the target PER. The rule should be considered for the proposal. I think that the other instantaneous index, e.g. channel coefficient is better for wordlength control.

Conditions from the 2^{nd} Reviewer

1) I think that your method can not apply to current WLAN systems without modification. Because, when a packet error occurs, a transmitter may change a modulation type by automatic rate fallback function [1], [2]. This function is commonly adopted in consumer products. Since a PER is used for an index of wordlength selection in this simulation, more than 100 receiving packets are spent on updating the next wordlength. It looks that this wordlength control scheme is not suitable for WLAN system. Could you describe a solution for this problem?

2) If your target system is IEEE802.11a, 64QAM is more reasonable parameter than 16QAM. Could you show me the reason that you did not choose 64QAM for the simulations?

[1] Yong Xi, et al., "Adaptive Multirate Auto Rate Fallback Protocol for IEEE 802.11 WLANS", MILCOM 2006. IEEE, 23-25 Oct. 2006, pages: 1 - 7

[2] Pang, Q., et al., "A rate adaptation algorithm for IEEE 802.11 WLANs based on MAC-layer loss differentiation", Broadband Networks, 2005 2nd International Conference, 3-7 Oct. 2005, pages 659 - 667, Vol. 1

The comments from the 2^{nd} reviewer indicates minor revision.

The 2^{nd} reviewer may decide "conditionally accepted".

The paper was revised …

Make all revised parts clear in the second version, i.e., the revised paper.

In addition, all of them are explained in the answer sheet.

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Determination of wordlength in digital signal processing (DSP) is an important task because wordlength affects hardware size, system performance, and power consumption. Large wordlength yields better performance in digital hardware but increases power consumption. On the other hand, a small wordlength degrades system performance if the dynamic range is insufficient [4]. Wireless communication systems require a wordlength sufficient for various environments. In other words, the wordlength necessary to maintain good performance depends on the wireless environment. Use of a variable wordlength technique can maintain the required performance and keep power consumption

Reply Letter was prepared …

Reply Letter

Paper Number : 2009EAP1253

Paper Title : A Variable Wordlength Technique for Soft-decision Viterbi Decoder to Reduce Power Dissipation in Wireless LAN System

Authors: Jaeseong Kim, Shingo Yoshizawa, Yoshikazu Miyanaga

[Associate Editor's Comments to Authors]

Our panel of reviewers point out that the manuscript should be revised before publishing because there exist some ambiguities in the current manuscript. It is required to enhance the reliability of the simulation and the environmental assumptions should persuasively explained.

[Reviewer A's Comments to Authors]

1. Strength: Reduction of power dissipation by simplifying the computation of metric based on the target PER using right-shift operation.

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1. Mandatory Revisions: Check carefully your simulations. Why is the performance of QPSK (in Channel A) worse than 16QAM (in Channel A). Theoretically the performance of 16QAM should be worse than QPSK. When the channel is good (AWGN), it is about 3dB, but vary in fading channel (according to the fading model). The explanation in the paper (packet length) could not be accepted, because for the case of Channel C, the

No Greetings

No answer to the associate editor

The Final Decision …

REJECT

- Associate Editor’s Comment to Authors
  - One of reviewers points out that the manuscript should be further revised because the contents are still **partial (= unfair)** and **lacks reliability** due to assumptions.

The 1st Reviewer's Comments

Strength: This paper propose adaptive wordlength of the Viterbi decoder according to desired PER for reducing power dissipation.

Weakness: Revision is partial and inconsistent.

The 1st Reviewer's Comments

- Correctness

  According to the reply A[2], the paper applies ZF because of one-tap channel is the main consideration. However, the paper considers HIPERLAN/2 channel A and C that have maximum delay spread 490ns and 1050ns. Because the delay spread measures the difference between the time of arrival of the first significant multipath co[illegible]th component, the considered channel A and B is no[illegible]

- Reply A[3]

  The CP length is 0.8u[illegible]05us. It means that the CP is shorter than delay le[illegible]ter-symbol interference (IBI) can not be perfectly r[illegible]can not be guaranteed. What kind of equalizer has [illegible] IBI because the CP is shorter than delay length.

- Reply A[4]

  Explanation about H_k[illegible]about how to calculate the estimate channel. If H_k is only the estimate channel, x_n in Eq. (6) should be only the residual error where the value can be zero when ¥hat{b}_n=b_n. In this case from where the information is obtained.

- Reply A[5]

  The question about FFT and CP length is actually for the purpose of evaluating the overhead by CP. However, FFT is 64 and CP is 0.8us. Please provide it in the same unit.

- Manuscript

  a. Polinoials (page 2, line 1 after (3)) --> polynomials.

Too Many Comments

The 2nd Reviewer's Comments

Strength:

- Viterbi decoder is widely used telecommunication sy… well as wireless systems. Power reduction of telecommunication c… live issue. This paper shows one of the solutions in WLAN sy…

Weakness:

- Since IEEE802.11a WLAN was de… bility or nomadic environment, your pretension in… reasonable. However, cooperation with automatic r… unction is still important for applying the technique to co… Please publish the results of future work.

Still there are conditions.

If you are re-submitting a manuscript revised from this rejected one in IEICE Transactions, you are kindly encouraged to attach an "Authors' Reply“ to the revised manuscript in order to expedite the review process.

Authors’ Mind …

- Since the authors had an associate editor’s comment, they had to understand the situation of review results might be in chaos.
- The final decisions may be splitted, i.e., Reject and Accept.
- The explanation of answers in Reply Letter is NOT enough.
- The presentation style of the revised paper has still difficult points in some aspects, i.e., English, Content, etc.

Typical Conditions from the reviewers

- Example where the reviewer would like to say "**REJECT**" but gives his comment:
  - The representation in English is wrong. The authors should improve its English presentation. Ask native proofreading.
  - The theory and method are unclear. Please rewrite all of them clearly and concisely.
  - The results on experiments are not reliable. Please revise them accurately.

Negative Conditions

Typical Conditions from the reviewers

- Example where the reviewer would like to say "**ACCEPT**" but gives his comment:
  - The content in this paper is new and novel. There are still unclear points.
  - Some results on experiments and their explanation are still required.
  - The references may be added more. Please refer **** in Introduction.

Positive Conditions

Conflicts on …

- If the comment of the 1^{st} reviewer is against the comment of the 2^{nd} reviewer, what should the authors do?
  - In the paper, the correct revision the authors believe should be given.
  - In the answer sheet, the authors write its conflict honestly and explain how to revise the paper.

Reviewer's Conflict 1

1st Reviewer: Equation (1) is wrong. Please revise it.

2nd Reviewer: Explain Eq.(1) more.

Reply Letter …

****

1st Reviewer

****

- Comment: Equation (1) is wrong. Please revise it.

- Location: Page 5, Right lines 25 - 30
- Answer: Eq.(1) is correct. However, we need to explain Eq.(1) correctly according to the 2nd reviewer's comment.

****

2nd Reviewer

****

- Comment: Explain Eq.(1) more.

- Location: Page 5, Right lines 25 – 30
- Answer: We add more explanations about Eq.(1).

Reviewer's Conflict 2

The 1st Reviewer: Section 2 must be eliminated since it is well known.

The 2nd Reviewer: Section 2 is important for new readers. Please revise it more in detail.

Major Revision

Minor Revision

It is difficult for authors to select which comment is reflected to their revised paper.

First: Authors know their paper very well more than any others.
Second: Select a comment by which their paper must be improved.
Third: Answer both of reviewers correctly and honestly.

If **obviously** wrong comment happens on …

- If there is obviously wrong comment, why and what should we do?
  - There are reasons why such comment happens.
    - When the representation and/or its English are quite **bad**, such situations may happen. (many cases)
    - When the reviewer is **not familiar** with this narrow topic, it may be sent. (rare case)
  - Still you have to answer its comment.

Against the wrong comments

- Consider why such comments are sent.
  - Check all parts in which incorrect contents and wrong description are given.
  - Almost all of them are coming from the wrong description… It is not coming from contents, theory and experiments.
- Rewrite with the best representation.

Reject Paper

- Difference between minor and major revision
- Theoretically, major revision means …
  - Many parts should be rewritten.
  - A part of theory may be wrong and/or misled. It should be re-considered.
  - Some of experiments should be tried again and their results should be improved.

Example 1 –abstract-

This paper presents a multi-clustering network for the purpose of intelligent data classification. In this network, the first layer is a self-organized clustering (SOC) layer and the second layer is a restricted clustering layer with a neighborhood mechanism. A clustering algorithm is developed in the parallel processing system. This parallel algorithm enables the nodes of this network to be independently executed in order to minimize data communication load among processors. Using the parallel processors, the quite low calculation cost can be realized. For example, a 4-processor parallel computing system has shown its ability to reduce the time taken for data classification to 26.75% of a single processor system without declining its performance.

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26.75% of a single processor system without declining its performance.

It looks like good but totally very bad description.

Reviewer said what **new and novel points** are and in addition what kind of **good and useful values** can be given.

Example 2 –abstract-

New clustering network is **proposed** in this paper. It consists of two layers. The first layer is a self-organized clustering (SOC) layer which is **different** from any conventional SOC. In the first layer, any detail characteristics of observed data can be clustered by using **new** defined criterion. The second layer is a restricted clustering layer with a neighborhood mechanism. In the second layer, similar clusters are grouped for **efficient data mining**. The two layer structure on SOC can present an **accurate and effective data clustering** unlike any other conventional SOC. The proposed clustering algorithm is **newly** designed in parallel/pipeline form in this paper. Using the **proposed** parallel processing, a **real time processing** and **low power consumption** are simultaneously realized.

Why is this paper rejected ?

- Originality
  - Is it new really ?
- Practicality and Utility
  - Can authors show high potential and/or Wide utility value ?
  - Is it really used in an application ?
- Reliability
  - Can readers believe it ?

Why don’t you check your paper by yourself?

	5: Very High	4:High	3:Normal	2:Low	1:Very Low
New/ Originality					
Practicality/ Utility					
Reliability					

Would you please rate your paper in the above table ?

Example coming from the Previous example

	5: Very High	4:High	3	2	1
New/ Originality	1. 2 layer SOC 2. New Parallel Processing				
Practicality/ Utility		1. Data mining 2. Media Clustering of Speech 3. 2 real examples of speech feature clustering			
Reliability	1. Processing speed is 200msec 2. Power consumption is 500mW 3. Comparisons with 2 conventional methods and then improve 60% to 80% at correctness				

Reviewer and Authors' Mind

- The rating of the reviewer may be severe rather than authors
  - Rate of Authors should be down to one point.
  - 5 -> 4, 4 -> 3, 3 -> 2, 2 -> 1 and 1 -> 0
- All items should be greater than 2. The rate of 2, 1 and 0 means there are weak points.

REJECT

Example in the previous

- Authors’ rate
  - Originality:5, Practicality:4, Reliability:5
- Reviewer’s rate expected
  - Originality:4, Practicality:3, Reliability:4
- Authors can submit their paper and the paper must be accepted.

No Problem !

Trust me.

Although all rates are high …

- The authors’ paper is rejected at that time although All ratings are high enough.

Do not forget

English

and/or

Presentation (Explanation)

English …(example)

This paper proposed a clustering network consists of two layers. Two layers designed in parallel algorithm are new and quite useful for speech recognition systems we proposed this system lower speed. The lower layer try to find new features it is different from others where self-organized clustering is proposed.

It looks like English but not English.

New clustering network is proposed in this paper. It consists of two layers. The first layer is a self-organized clustering (SOC) layer which is different from any conventional SOC. In the first layer, any detail characteristics of observed data can be clustered by using new defined criterion. It is used for speech recognition.

Presentation…

Two layers designed in parallel algorithm are new and quite useful for speech recognition systems we proposed this system lower speed.

Too much contents are included into one sentence.

A two-layered structure is proposed as a new clustering method.
It is designed in parallel.
The proposed method is quite useful for speech recognition systems.
This system can realize shorter processing speed than conventional systems.

The flow of contents is also important.

(1) A two-layered structure is proposed as a new clustering method.
(2) The proposed method is quite useful for speech recognition systems.
(3) It is designed in parallel.
(4) This system can realize shorter processing speed than conventional systems.

Although all rates and English are good …

- The authors’ paper is rejected at that time although All ratings and English presentation are high and good enough.

Believe your talent.

Submit the paper to another journal which is much more suitable, please.

Although all rates and English are good …

- The authors' paper is rejected at that time although All ratings and English presentation are high and good enough.

Believe your talent.

Submit t…

which is…

IEICE is always trying to improve its editorial processing. All of good papers should be accepted.

IEICE ESS

- IEICE Engineering Sciences Society
  - IEICE EA Journal
- This seminar are fully supported by IEICE ESS.
- We are really waiting for your good quality papers.
- Would you please be a member of IEICE ESS ? Then submit your paper to IEICE ESS many and many.

Summary

- Conditionally Accepted Paper…
  - Carefully revise it and answer with Reply Letter.
- Reject Paper…
  - Do not give up.
  - Check the paper on Originality, Practicality and Reliability
  - Strongly Suggest the check of Readability.
    - English, Presentation, Contents' Flow